

Habitat Conservation Plan for the RE Cinco Project

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1.0 INTRODUCTION

1.1 Overview

RE Barren Ridge 1 LLC (Permittee), a fully owned subsidiary of Recurrent Energy (RE), seeks an Incidental Take Permit (ITP) pursuant to Section 10(a)(1)(B) of the Endangered Species Act (ESA) for the incidental take of the federally listed desert tortoise (*Gopherus agassizii*) potentially resulting from full implementation of the RE Cinco Solar Project (Project). As specified in ESA Sections 10(a)(2)(A) and 10(a)(2)(B), a conservation plan is a mandatory component of all ITP applications. The Permittee prepared this Habitat Conservation Plan (HCP) to propose a program that will avoid, minimize, and mitigate incidental take of desert tortoise potentially resulting from development, operation, and decommissioning of a 60-megawatt (MW) solar photovoltaic (PV) power-generating facility (solar facility). The solar facility will be located on privately owned land near the towns of California City and Mojave within Kern County, California (Figure 1-1).

A generation intertie line (gen-tie line) connecting the solar facility to the existing Los Angeles Department of Water and Power (LADWP) Barren Ridge Switching Station will also be constructed to deliver power to the electrical grid. The preferred gen-tie line alignment will be constructed primarily on federally owned land administered by the Bureau of Land Management (BLM) and will require BLM's issuance of a right-of-way (ROW) grant. Alternative alignments on private land are also being considered. BLM is analyzing effects associated with issuance of a ROW grant per the National Environmental Policy Act (NEPA), and will consult with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7(a)(2) of the ESA. A separate ESA Section 7 consultation is being conducted for the gen-tie line ROW application because BLM has jurisdiction for approval of the gen-tie line only. The Section 7 consultation between BLM and USFWS will exempt take of desert tortoise resulting from the gen-tie line portion of the Project. USFWS will issue a single Section 7(a)(2) biological opinion for two federal actions: issuance of the ROW grant for the gen-tie line and issuance of an ITP for the solar facility.

The purpose of the Project is to provide 60 MW of clean renewable energy through development of a solar energy-generation facility. The need for the Project is threefold:

- produce up to 60 MW of clean electricity to assist the state of California in achieving the 33% renewable portfolio standard for 2020 by providing a significant new source of renewable energy;
- lessen carbon emissions by building a renewable energy-generating facility instead of a like-sized fossil-fuel facility to meet increasing demand for in-state generation; and



Source: RE Cinco 2013; Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

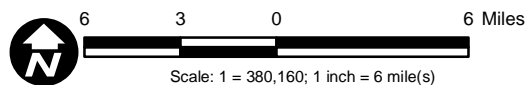


Figure 1-1
Regional Map

RE Cinco Project - Habitat Conservation Plan

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- bring living-wage skilled jobs to Kern County and California through development, construction, and operation of a renewable energy generating facility.

The Project will operate year-round and generate electricity during daylight hours when electricity demand is at its peak. The output of the Project will serve to off-set greenhouse gas (GHG) emissions created by traditional energy facilities, and reduce by thousands of tons the amount of carbon dioxide (CO₂) created each year by such facilities.

1.2 Relevant Project Permitting Background

The Project (formerly RE Barren Ridge 1 Project), including the solar facility and gen-tie line, was reviewed and approved by the Kern County Board of Supervisors on December 6, 2011. The Kern County Board of Supervisors certified an Environmental Impact Report (EIR) (Kern County Planning and Community Development Department 2011) prepared in accordance with the California Environmental Quality Act (CEQA), and granted a General Plan Amendment and a Conditional Use Permit to authorize development of the Project.

The Permittee has submitted an application to California Department of Fish and Wildlife (CDFW) for a Section 2081 incidental take permit to cover potential impacts to species listed under the California Endangered Species Act (CESA) resulting from Project implementation. The Section 2081 permit will cover impacts to the desert tortoise and the state-listed Mohave ground squirrel [*Spermophilus mohavensis*], and may include mitigation obligations additional to those outlined in this HCP. To the extent necessary and feasible, the Permittee will coordinate implementation of the HCP with obligations of the Project's Section 2081 permit.

1.3 Permit Permittee/Permit Duration

The permit Permittee is RE Barren Ridge 1 LLC (referred to herein as the "Permittee"). The Permittee will become the sole permit holder if USFWS issues the ITP. Activities covered by this HCP (see Chapter 2) will be implemented by Permittee employees or by contractors working under Permittee supervision.

The Permittee requests authorization for incidental take of the desert tortoise for 40 years. The anticipated life of the Power Purchase Agreement (PPA) will be approximately 20 to 25 years; however, the operational life span of span of the solar facility and duration of the gen-tie line ROW grant is anticipated to be up to 40 years. Following expiration of the Project's PPA, the Permittee may, at its discretion, choose to enter into a subsequent PPA, update technology and recommission the facility, or decommission and remove the system and its components.

The 40-year period was developed in consideration of the "Five-Point Policy" (65 *Federal Register* [FR] 35242). The Permittee determined that 40 years is sufficient for construction,

operation, decommissioning, and reclamation of the Project, and to implement avoidance, minimization, and mitigation measures. In addition, predicting effects of the Project beyond 40 years may be difficult because the distribution and listing status of desert tortoise may change over time. For this same reason, amendments to the ITP might be required for periods beyond 40 years. As discussed in Chapter 7, the Permittee may elect to apply to renew or to amend the HCP and ITP at the end of the 40-year permit term.

1.4 Permit Boundary

The Permit Boundary is generally defined as a 594-acre, privately owned parcel that will include the constructed solar facility (Figure 1-2). Potential relocation of desert tortoise will occur within undeveloped portions of this parcel, and the parcel will be accessed via two existing dirt roads off the west side of State Route 14 (SR-14). Mitigation lands acquired for impacts resulting from the Project and areas needed for potential relocation of desert tortoise will also be included as part of the Permit Boundaryⁱ. Given that mitigation lands have not yet been identified, descriptions of the Permit Boundary herein are generally limited to the 594-acre privately owned parcel and immediate vicinity (i.e., within approximately 500 feet).

1.5 HCP Covered Species

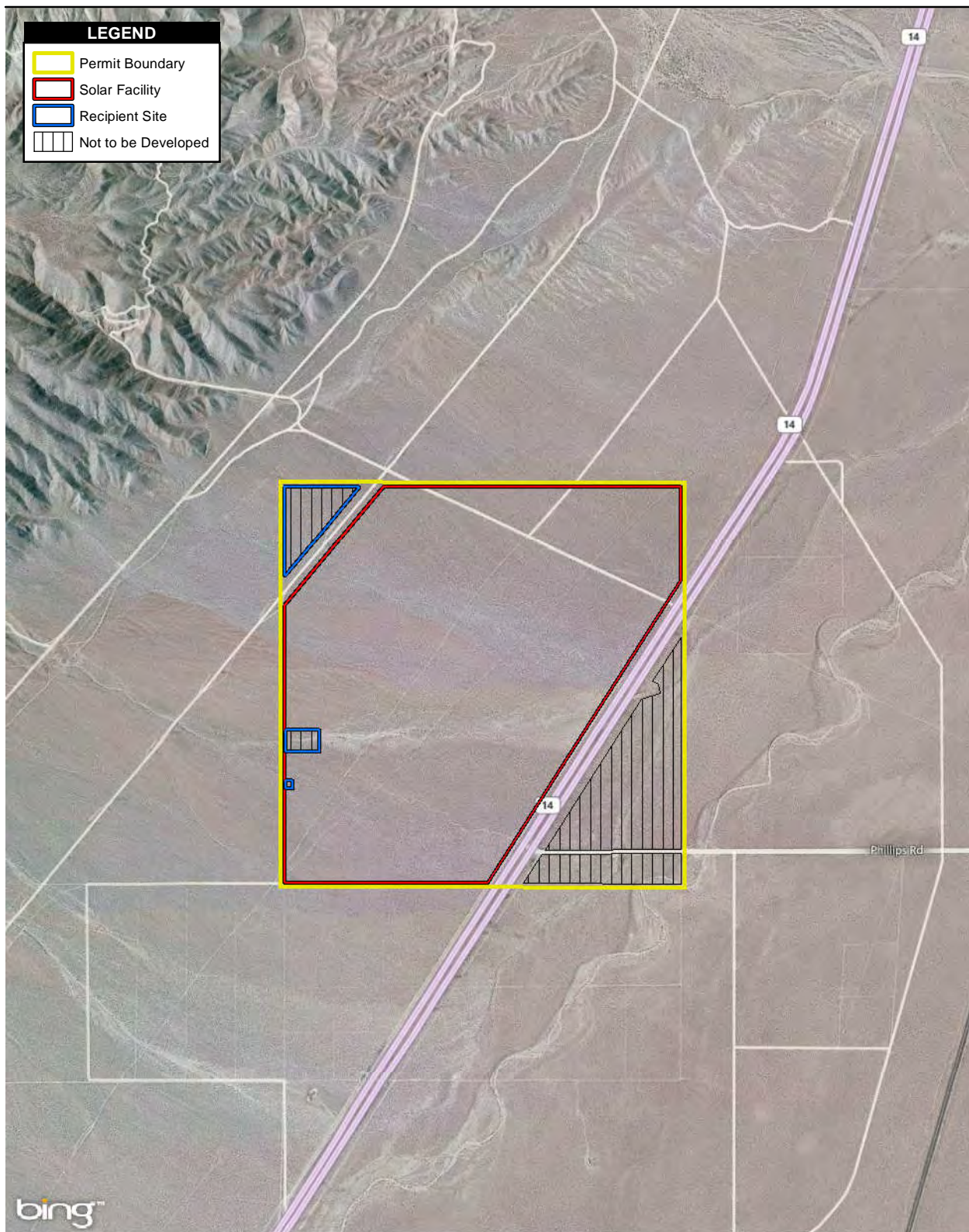
This HCP and proposed ITP will cover the federally threatened desert tortoise. The potential for federally listed species and other sensitive species to occur within the Permit Boundary was evaluated based on the *Biological Resources Assessment for the RE Kern County Desert Solar Projects* (Rincon Consultants 2011a), the *Supplemental Biological Results: RE Rosamond One and Two, RE Barren Ridge 1* (Rincon 2011b), and a database search of the California Natural Diversity Database (CNDDDB) for known occurrences within a 10-mile radius of the Project (CDFW 2013). Desert tortoise is the only federally listed species known to occur within the vicinity of the Project. Figure 1-3 depicts CNDDDB occurrences of desert tortoise within a 10-mile radius of the Project.

1.6 Regulatory/Legal Framework

1.6.1 Federal Endangered Species Act

The federal ESA was enacted in 1973 to protect plant and animal species that are in danger of or threatened with extinction. ESA Section 9 and its implementing regulations prohibit the take of

ⁱ Mitigation lands would consist of the 500 acres of compensatory mitigation required by USFWS as well as additional acreage, up to 1,200 acres, that may also be required by other agencies (i.e., CDFW and/or Regional Water Quality Control Board) for resource mitigation.



Source: RE Cinco 2013; Image courtesy of USGS Image courtesy of the Nevada State Mapping Advisory Committee © 2014 Microsoft Corporation © 2013 Nokia © AND

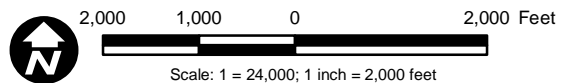
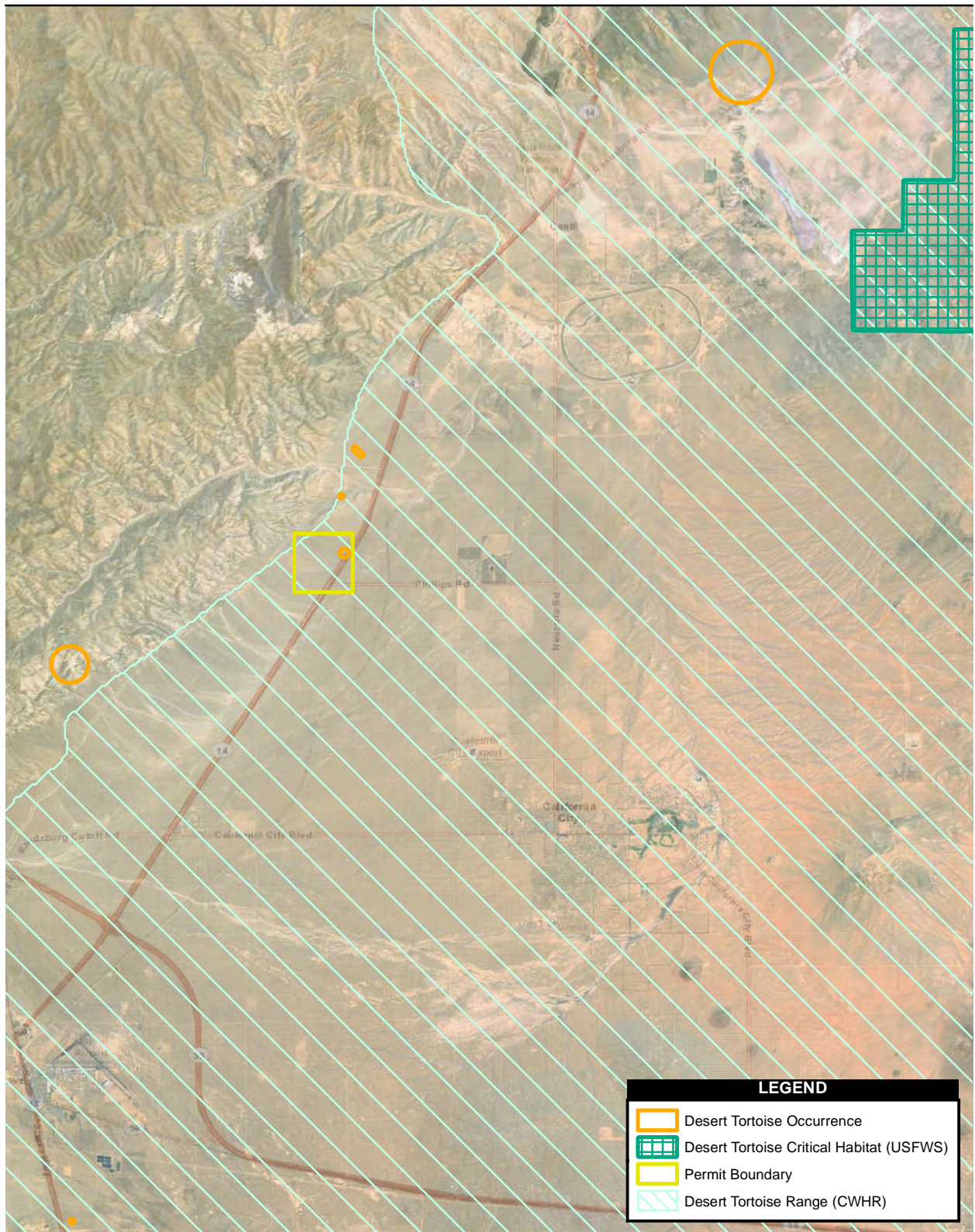


Figure 1-2
Permit Boundary

RE Cinco Project - Habitat Conservation Plan

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Source: RE Cinco 2013; USFWS; BLM; CWHR-CDFG; Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013
 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

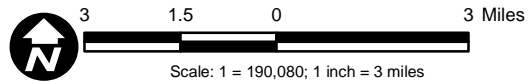


Figure 1-3
Recorded Occurrences of Federally Listed Species
Near the Permit Boundary

any fish or wildlife species that is federally listed as threatened or endangered without prior approval under either Section 7 or Section 10(a)(1)(B) of the ESA. The ESA defines “take” as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The term “harass” in the definition of “take” in the ESA is further defined in 50 Code of Federal Regulations (CFR) 17.3 to include an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding, or sheltering. “Harm” in this definition means any act that actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Section 10(a)(1)(B) of the ESA establishes a process for obtaining an ITP that authorizes nonfederal entities to incidentally take federally listed wildlife or fish, subject to certain conditions. Incidental take is defined by the ESA as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” Preparation of a conservation plan, generally referred to as an HCP, is required for all Section 10(a)(1)(B) permit applications. USFWS and the National Oceanic and Atmospheric Administration (NOAA) have joint authority under the ESA for administering the incidental take program. The species at issue in this HCP is exclusively within the jurisdiction of USFWS. The regulatory standards under ESA Section 10(a)(1)(B) are that the effects of authorized incidental take must be minimized and mitigated to the maximum extent practicable, that the effects of the authorized incidental take must not appreciably reduce the likelihood of the survival and recovery of the species in the wild, and that adequate funding for a plan must be ensured.

Section 7 of the ESA requires all federal agencies to ensure that any discretionary actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any species listed under the ESA, or to result in the destruction or adverse modification of its designated critical habitat. The issuance of a Section 10 ITP is a discretionary federal action by USFWS. Consequently, in conjunction with issuing a permit, USFWS must conduct an internal Section 7 consultation on the proposed HCP and proposed permit action. The internal consultation is conducted after an HCP is developed by a nonfederal entity and submitted for formal processing and review. The provisions of ESA Sections 7 and 10 are similar, but Section 7 requires consideration of several factors not explicitly required by Section 10. Specifically, Section 7 requires consideration of the indirect effects of a project, effects on federally listed plants, and effects on designated critical habitat. Consequently, HCPs must also include analysis of indirect effects of the covered activities, direct and indirect effects on federally listed plants, and an adverse-modification analysis of any critical habitat. The internal Section 7 consultation terminates with the completion of a BO prepared by USFWS, which provides USFWS’s

determination of whether issuing the proposed permit and implementing the HCP is likely to result in jeopardy to any listed species or adversely modify designated critical habitat.

1.6.2 HCP Requirements and Guidelines

ESA Section 10 and implementing regulations require that any HCP submitted in support of an ITP application include the following information:

- A complete description of the activity to be permitted
- A description of the species to be covered by the permit
- Impacts likely to result from the proposed take of the species for which permit coverage is requested
- Measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances
- Alternatives to the proposed take that were considered and the reasons why such alternatives are not proposed to be used
- Additional measures that USFWS may require as necessary or appropriate for purposes of the HCP

In June 2000, USFWS and NOAA adopted the Five-Point Policy designed to clarify elements of the HCP program as it relates to biological goals, monitoring, adaptive management, permit duration, and public participation (65 FR 35242). The Five-Point Policy directs that the following elements be addressed in the development of all HCPs:

- **Biological Goals and Measurable Objectives:** HCPs are required to define the biological goals and objectives that the plan is intended to achieve. Biological goals and measurable objectives clarify the purpose and direction of the HCP's conservation program, including specific measurable targets that the HCP is intended to meet. These goals and objectives serve as the guiding principles for the operation of the conservation program of the HCP and must be commensurate with the specific impacts and duration of the Permittee's proposed action.
- **Monitoring:** Monitoring is a mandatory element of all HCPs. Monitoring programs for HCPs should provide the information necessary to assess compliance and project impacts, and verify progress toward the biological goals and objectives.

- **Adaptive Management:** The Five-Point Policy encourages the inclusion of adaptive management strategies in HCPs in appropriate circumstances to address uncertainty about species covered by the HCP and to incorporate the flexibility to change implementation strategies after permit issuance. The Five-Point Policy describes adaptive management as a “method for examining alternative strategies for meeting measurable biological goals and objectives, and then, if necessary, adjusting future conservation management actions according to what is learned.”
- **Permit Duration:** Consistent with the Five-Point Policy, USFWS considers several factors in determining the term of an ITP. For instance, USFWS takes into account the expected duration of the activities proposed for coverage and the anticipated positive and negative effects on covered species that will likely occur during the course of HCP implementation. USFWS also factors in the level of scientific and commercial data underlying the proposed conservation program, the length of time necessary to implement and achieve the benefits of the conservation program, and the extent to which the program incorporates adaptive management strategies.
- **Public Participation:** Under the Five-Point Policy, USFWS extended the public comment period to 60 days for most HCPs. USFWS generally allows 30 days for public comment for low-effect HCPs and individual permits under a programmatic HCP and longer than 60 days for large-scale, regional, or exceptionally complex HCPs. USFWS notifies the public of the availability of permit applications by means of a *Federal Register* notice.

Once an ITP is issued, the permit holder implements the HCP by monitoring the covered activities’ effects, funding and monitoring the conservation plan, reporting to USFWS, and implementing other permit terms and conditions. USFWS monitors the permittee’s compliance with the HCP permit terms and conditions, and the long-term progress and success of the HCP.

1.6.3 National Environmental Policy Act

NEPA requires that federal agencies integrate environmental values into their decision-making processes by considering the environmental impacts of their actions (in this instance, issuance of an ITP) and include reasonable alternatives to those actions (42 United States Code [USC] 4321 et seq.). There are three levels of analysis allowed for under NEPA:

- **Categorical Exclusion:** An undertaking may be categorically excluded from a detailed environmental analysis if it meets certain criteria that a federal agency has previously determined as having no significant environmental impact.

- **Environmental Assessment (EA)/Finding of No Significant Impact (FONSI):** A federal agency prepares an EA to determine whether a federal undertaking would significantly affect the environment. If the answer is no, the agency issues a FONSI, which may address measures that an agency will take to mitigate potentially significant impacts.
- **Environmental Impact Statement (EIS):** If the federal agency determines in an EA that the environmental consequences of a proposed federal undertaking may be significant, the agency prepares an EIS, which is a more detailed evaluation of the proposed action and alternatives. The public, other federal agencies, and outside parties may provide input into the preparation of a draft EIS and may comment on the draft document. This process concludes with the issuance of a final EIS and a Record of Decision (ROD).

For this Project, the USFWS is preparing an EA to evaluate the environmental impacts of the issuance of an ITP for the solar facility. USFWS will solicit public comments on the EA and HCP during a 60-day public review period.

1.7 Document Organization

This HCP is organized as follows:

- Chapter 1, Introduction and Background, introduces the Project, names the permit Permittee and proposed permit term, identifies the permit boundaries, identifies the HCP “covered species,” discusses the regulatory framework related to this HCP, and outlines the organization of the HCP.
- Chapter 2, Project Description/Covered Activities, describes the Project and activities proposed to be covered by the ITP.
- Chapter 3, Environmental Setting/Biological Resources, describes the existing environmental baseline for the Permit Boundary and the biological resources found there, including desert tortoise.
- Chapter 4, Biological Effects/Take Assessment, describes the potential effects to the desert tortoise and its habitat resulting from covered activities.
- Chapter 5, Conservation Program, describes this HCP’s strategy for conserving desert tortoise, including the biological goals and measurable objectives.
- Chapter 6, Monitoring, Adaptive Management, and Reporting, describes the monitoring, reporting, and adaptive management aspects of the conservation program.

- Chapter 7, Implementation, describes HCP implementation, including changed and unforeseen circumstances, funding, and the process for making changes to the HCP.
- Chapter 8, Alternatives to Take, describes the alternatives to take of desert tortoise and explains the reasons why these alternatives were not selected.
- Chapter 9, References, provides full references for each citation in the text of Chapters 1 through 8.
- Chapter 10, Acronyms and Abbreviations, defines the acronyms and other abbreviations used in the text of Chapters 1 through 8.
- Chapter 11, List of Preparers, lists the names, roles, and affiliations of the individuals who prepared the HCP.

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2.0 PROJECT DESCRIPTION/COVERED ACTIVITIES

2.1 Project Description

The Project will be located in unincorporated southeastern Kern County, approximately 6.5 miles northwest of the town of California City, approximately 12 miles northeast of the town of Mojave, and approximately 0.8 mile south of the Los Angeles Aqueduct. The Project will operate year-round and generate electricity during daylight hours when electricity demand is at its peak. It is anticipated that the life of the PPA will be approximately 20 to 25 years, and the life of the Project will be approximately 40 years.

The Project is divided into two major components: the solar facility and the gen-tie line. As discussed in Section 1.1, BLM has jurisdiction for approval of the gen-tie line; the BLM and USFWS will consult on the gen-tie line, pursuant to section 7(a)(2) of the ESA. Therefore, this HCP addresses the solar facility only, which will be developed entirely on privately owned land. The following subsections describe the key components of the solar facility, as well as measures that will be implemented to avoid and minimize impacts to biological resources, including the desert tortoise, resulting from construction and operation of the solar facility.

2.1.1 Solar Facility Components

The solar facility will be developed on approximately 500 acres within a 594-acre, privately owned parcel. The remaining area within this parcel will be left undeveloped, including the area east of SR-14 (Undeveloped Parcel; 77 acres), the northwest corner west of the LADWP transmission line corridor (Recipient Site 1; 14 acres), the riparian extent of the major drainage on the west edge of the property (Recipient Site 2; 3 acres), and a desert tortoise burrow location to be excluded from the site (Recipient Site 3; 0.23 acre). RE would translocate any desert tortoises found on-site onto one of the three Recipient Sites. The solar facility will consist of the following components: a solar field of PV panels, an electrical collection system, an interconnection substation, and other infrastructure such as telecommunication facilities, roads and fences. Each component is discussed in the following subsections. The site will be accessed during construction and operation via two existing dirt roads off the west side of SR-14, one at Phillips Road and the other at the unnamed roadway (BLM Route MK50) approximately 0.75 mile farther north along SR-14. Figure 2-1 shows a layout of the proposed solar facility.

2.1.1.1 Photovoltaic Panels

The solar facility will include approximately 275,000 PV panels mounted on steel and aluminum support structures. The PV panels will range in height from approximately 8 to 12 feet depending

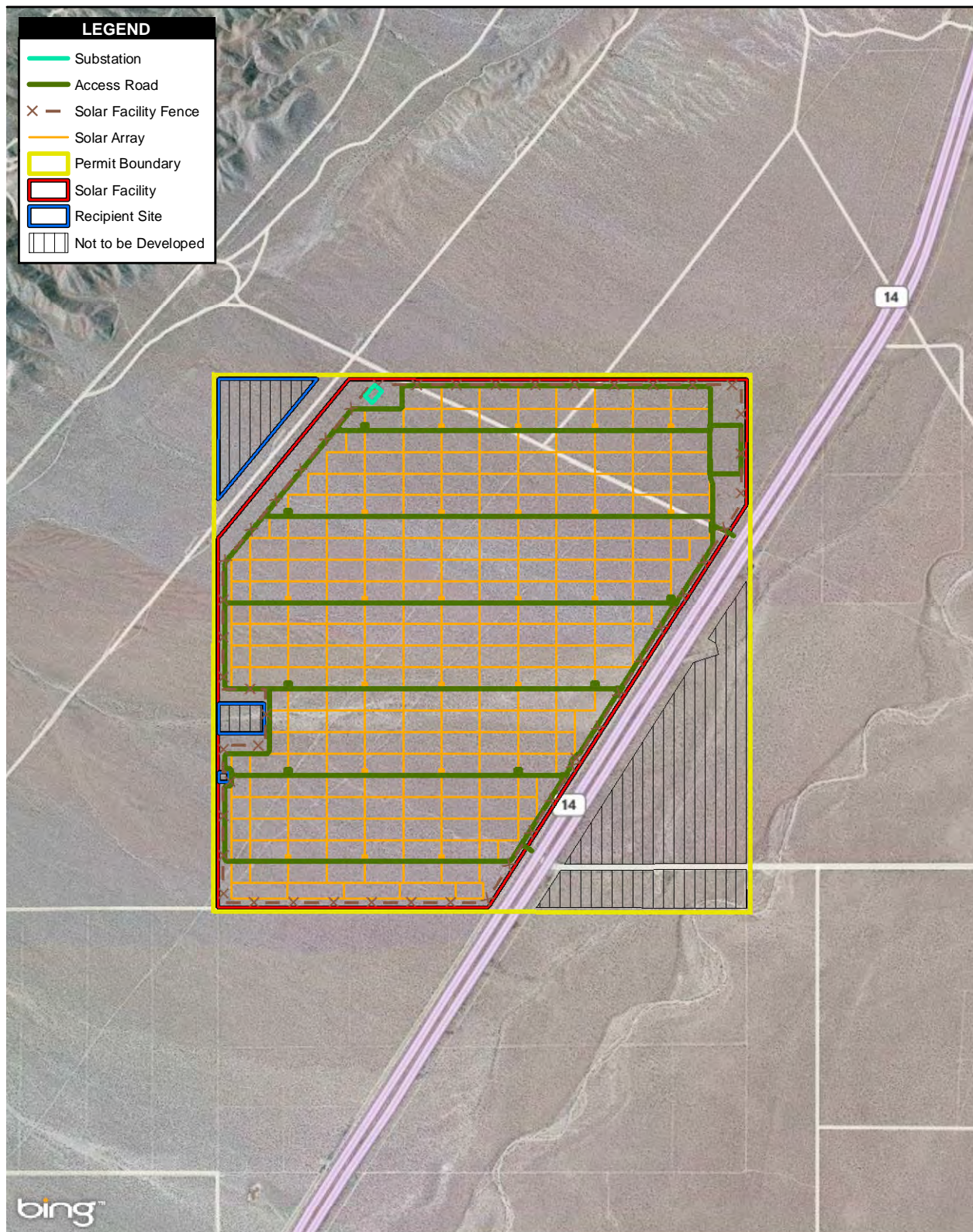


Figure 2-1
Proposed Layout of the Solar Facility

on the site slope, and will be arranged in rows with center-to-center spacing of approximately 20 feet. The support structures will be aligned north/south, and the PV panels will pivot, tracking the sun's motion from east to west.

The PV panels will be arranged in rectangular solar array blocks. Each block will have the following configuration: several panels attached to a ground-mounted structure, each set of panels forming a string, and several strings connected to a pad-mounted inverter/transformer station located in the center of the power block, which will convert the direct current (DC) power produced by the panels into alternating current (AC) power.

2.1.1.2 Electrical Collector System

The electrical collector system will aggregate output from each block's PV panels and convert the electricity from DC to AC via inverters. Thin wiring attached to the underside of each PV panel will connect the modules of each row and then connect to a collector system of wiring that will extend underground in conduit, and ultimately connect to the inverters and associated switchgear, which will be housed in each block's inverter enclosure. The inverter enclosures will have a maximum height of 10 feet and will only be accessed during inspection and maintenance activities. The inverter enclosures will be supported on concrete pads or footings, and could also house additional equipment, such as transformers. The enclosures will likely measure 20 feet by 40 feet, although they could be smaller depending on final design and the number of inverters and other equipment per pad. A motion-activated security light will be located at each inverter enclosure.

The output voltage from each inverter will be increased by an intermediate voltage transformer, located within the electrical equipment pad, and the power will then run at medium voltage via underground cabling to a collection box. The power will be stepped up to grid interconnection voltage by a power transformer. The power will pass through protective devices, such as fault-breaking switches, before being delivered to LADWP's transmission network. The electrical collector system will be buried underground at least 18 inches deep.

2.1.1.3 Interconnection Substation

The solar facility will include an interconnection substation with transformers that will increase the voltage to interconnection voltage. The on-site project substation may include a control building containing relay and metering equipment. Other related equipment may include metal-clad switchgear, transformers, open-air bus structures, lightning arrestors, steel poles, circuit breakers, disconnects, voltage and current transformers, and other related equipment. The approximate footprint of the substation is 120,000 square feet. Substation components will have a maximum height of 100 feet.

2.1.1.4 Internal Access Roads

Approximately 38,900 linear feet (7.4 miles) of internal access roadways will be constructed in a grid pattern across the site. The roads will run in a rectangular east/west pattern, and also around the site perimeter. These roadways will serve as the principal routes within the site, and will facilitate access to each solar array block and inverter location. The roads will be approximately 20 feet wide and will be designed to prevent soil erosion and to maintain existing surface water runoff patterns. The roads will consist of compacted native material that is expected to be topped with gravel or decomposed granite.

Narrower tracks will be located within each solar array block, and will be used for maintaining and washing the solar panels. These tracks will not be surfaced with gravel but will be compacted and stabilized.

2.1.1.5 Other Infrastructure Associated with the Solar Facility

No off-site infrastructure improvements will be required to operate the proposed solar facility, with the exception of the gen-tie line discussed below (see Section 2.1.2). No sewer improvements will be necessary to service the Project.

A 10,000-gallon water tank will be located at the facility to provide water for fire-fighting purposes. The tank will likely be located near the substation. As no wells or other water conveyances are planned as part of the facility's development, water for the tank will be hauled in as needed.

Besides the motion-activated security lighting for each inverter enclosure, several switch-activated lights will be located at the substation. Lighting will be designed to provide the minimum illumination needed to achieve safety and security during night work at the substation. No site perimeter lights are proposed for the solar facility. In general, the solar facility will be completely dark unless someone is working at the substation or at the inverter enclosures.

A communication tower will be constructed at the solar facility, most likely in the vicinity of the substation. The tower will be used to provide a secondary communication pathway between the solar facility and the Barren Ridge Switching Station. The tower will likely contain one or more microwave dishes and radio antennas. The tower will be 50 to 80 feet in height, with height being determined by line-of-sight requirements between the solar facility and the switching station.

Security poles will be located at each inverter location and also at facility entrances. Security cameras will be mounted to the top of each pole. The poles will be approximately 20 feet in height.

The solar facility will be enclosed with security fencing approximately 7 feet in height (6 feet of chain-link fence and 1 foot of barbed wire). Perimeter fencing surrounding the solar facility will also include desert tortoise exclusion fencing constructed in accordance with USFWS specifications. Entrances will be gated and access to secure areas will be controlled by keypad entry systems.

A permanent O&M building will be constructed within the solar facility, and this building will be staffed during daylight hours. A battery storage area and a control building will be constructed near the O&M building and substation. Each of the buildings will be constructed on a concrete pad. Battery structures will be mounted on pads designed with secondary containment in the unanticipated event of a leak or spill of fluid. A small permanent parking area will be constructed and surfaced with gravel adjacent to the O&M building.

2.1.2 Project Design Features

Project Design Features (PDFs) include measures and actions that will be implemented to address specific impacts that may result from Project implementation. PDFs that will be implemented for the Project and applicable to biological resources, including the desert tortoise, include the following:

- Storm water pollution prevention
- Hazardous substance management
- Weed management
- Raven management

The key components associated with these PDFs are described in the following subsections.

2.1.2.1 Storm Water Pollution Prevention

A Storm Water Pollution Prevention Plan (SWPPP) or equivalent document will be prepared that outlines best management practices (BMPs) for the management of storm water to minimize impacts to water quality, including those impacts associated with erosion and sediment transport. Anticipated BMPs that will be incorporated to minimize impacts are summarized below.

Erosion and Sediment Control

Water quality impacts during the construction phase of the Project are of particular concern. The potential for erosion generally increases as a result of development of structures and impervious surfaces and the removal of vegetative cover. During construction activities, potential will exist for sediment and other pollutants to impact surface waters. Grading for construction activity

removes vegetation and exposes soil to erosion from wind and water. Erosion can result in sedimentation that ultimately flows into surface waters. Erosion and sediment control BMPs will be implemented during construction activities to reduce the potential for erosion and sedimentation. These BMPs will include placing straw wattles, silt fencing, and/or gravel bags around disturbance areas; hydroseeding areas where vegetation is removed; and providing a stabilized entrance/exit to the site to clean vehicle wheels prior to exiting the construction areas. The Project will also adhere to the required project SWPPP or equivalent document that specifies BMPs for the purposes of controlling wet weather erosion.

Source Control

Construction of the Project will also require the use of gasoline- and diesel-powered heavy equipment such as bulldozers, graders, backhoes, excavators, water pumps, dump trucks, and air compressors. Chemicals such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, solvents, glues, and other substances will be used during construction. An accidental release of any of these pollutants could impact surface waters.

In addition to the erosion and sediment control BMPs discussed above, additional source control BMPs will be implemented during the construction phase of the Project to help minimize pollutant runoff to surface waters. Source control BMPs will include the following:

- Employee training program
- Good housekeeping practices
- Preventive maintenance programs
- Equipment and vehicle management practices
- Spill prevention and response programs
- Inspection programs
- Trash abatement program
- Established parking and staging areas
- Street sweeping (paved roads only where applicable)

Parking areas for construction personnel and staging and laydown areas for construction materials will be prepared inside the solar facility. Temporary containers with equipment will be placed in the staging and laydown areas. There may be a temporary project construction office on-site during the construction phase of the Project.

Site Design

The Project will also minimize any impacts to the surrounding environment through measures incorporated into the site design during construction activities. Grading of the solar facility is

proposed to remove all existing vegetation and the incised portions of existing channels. However, the general slopes of the topography will remain the same, and flows will be allowed to continue across the site along the same general contours and flow paths. Structures will be designed to handle the anticipated flow velocities and depths based on flow models presented in the Hydrology and Hydraulics Study (AECOM 2014). It is expected that existing watercourses will reestablish their original channels after each storm. Regular maintenance by the facility owner is expected to keep the incising within reestablished channels to a minimum.

Operations Phase

In addition to construction phase BMPs, the Project will require post-construction or operations phase BMPs to help minimize impacts to water quality and the surrounding area. Operations phase BMPs will include the following:

- Employee training program
- Good housekeeping practices
- Preventive maintenance programs
- Equipment and vehicle management practices
- Spill prevention and response programs
- Inspection programs
- Trash abatement program

On-Site Retention

Construction of the Project will result in a small increase in storm water runoff. To avoid potential downstream and off-site impacts, increased runoff volume will be retained on-site. This will be achieved by incorporation of downstream retention basins per Kern County standards for added storage capacity and dissipation to control flows and reduce flow velocity, thereby reducing erosion and sediment transport. The basins will be shallow and will be located within perimeter fencing (i.e., security and desert tortoise exclusion fencing) surrounding the solar facility. Additionally, the PV panels will be placed above the existing ground, allowing infiltration to occur beneath each panel. The panels are also within an effective height range (less than 30 feet) to assist in reducing splash erosion on the soil surface.

Revegetation

Construction of the Project will remove vegetation, resulting in higher velocity flows. Flow velocity will be slowed by reestablishing on-site vegetation. The Project site will be hydroseeded with a native seed mix, to be reviewed by the applicable agencies including the USFWS and

CDFW, following project construction, to slow water flows through the site and maintain hydrologic conditions similar to pre-construction conditions.

2.1.2.2 Hazardous Substance Management

Hazardous materials will be used and stored at the solar facility; however, hazardous materials will not be used or stored along the gen-tie line. Hazardous materials spill kits will be maintained on-site for small spills. Hazardous materials will not be disposed of or released onto the ground, underlying groundwater, or any surface water. Totally enclosed containment will be provided for all trash. All construction waste, including trash, other solid waste, petroleum products, and other potentially hazardous materials will be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials.

2.1.2.3 Weed Management

Vegetation at the solar facility may require occasional management. A vegetation management and weed abatement program will be implemented to control vegetation within work zones and access roads, and to minimize potential impacts from invasive plants. Based on the aridity of the area and the overall low densities of vegetation present, it is not likely that vegetation will encroach upon the solar facility in such a manner that access will be impaired. However, noxious weeds could create a fire hazard if allowed to become established, and invasive weeds could also become problematic from a biological perspective. Therefore, weed management will be implemented as needed.

Weed management will include manual (hand), mechanical (mechanized equipment), and herbicide control. Manual control of weeds will involve use of hand tools such as shovels or hoes. Mechanical control will primarily involve the use of line trimmers for mowing weeds where appropriate. Typically, mowing will only be used if weed species have flowered and it is too late to use herbicides. At that point, mowing will be used to cut and remove vegetation before seeds are released into the environment. The use of large high-deck mowers or other large mechanized equipment is not proposed for this Project, as it is unlikely that such equipment will be necessary.

Herbicides will be necessary to minimize the spread of invasive weeds following construction disturbance as part of an integrated pest management strategy. Herbicide control will include the following:

- Herbicide proposed for use on the Project will be limited to a glyphosate product, most likely Monsanto product Roundup PRO.

- Herbicide will only be applied by hand from a backpack sprayer or a truck-mounted spray rig. The spray rig will use individual lines that are applied directly by hand and will not use a truck-mounted boom sprayer.
- The maximum rate of application for Roundup will be 10.6 quarts per acre per year.
- The intended rate of application is 2% solution for Roundup.
- Application dates will be intended for a full 5-year weed management program, beginning during the construction phase, if needed.
- Treatments will be as needed upon emergence of the target weed species during the growing seasons. Growing seasons are typically November to April, but may include July to September if rainfall is sufficient to germinate target weed species.
- The total number of applications is dependent on the extent of weeds within the disturbance areas, but three or more treatment efforts may be required. Treatment efforts are defined as one round of treatment at the solar facility. Rainfall amounts will determine the number of treatment efforts needed, but it is assumed that weed management visits will be conducted no more than once per month during the growing seasons. Based on these basic assumptions (one treatment per month for up to 9 months for 5 years), a maximum of 45 total treatments will occur for the solar facility during the 5-year period.
- The primary nonnative species to be targeted are Saharan mustard (*Brassica tournefortii*), Russian thistle (*Salsola tragus*), Mediterranean grass (*Schismus* spp.), and storksbill (*Erodium* spp.). Additional nonnative plant species may be identified during monitoring efforts, and these will also be targeted for management efforts.
- Crews that conduct weed treatment on the Project will have extensive experience working on sensitive habitats and species. In addition, crews will be supervised by a restoration ecologist and a desert tortoise monitor. Weed management will be specifically applied to individual plants and not sprayed broadly across the Project site.
- Crews will work under the direct supervision of a licensed Certified Pesticide Applicator.
- Crews will adhere to strict application guidelines when applying herbicide during windy conditions to minimize drift and chemical contact with nontarget vegetation and wildlife. Herbicide application will be suspended if winds are in excess of 6 miles per hour, or if precipitation is occurring or imminent (predicted within the next 24 hours).
- The chemicals chosen (glyphosates) were identified for use due to the low likelihood of toxicity on wildlife species, in particular, desert tortoise. The potential for ingestion of recently treated plants is present; however, an on-site restoration ecologist and tortoise-

specific monitors will minimize this risk. After treatment, the herbicide will dry rapidly in the desert environment and the risk will be further minimized.

2.1.2.4 Raven Management

The Permittee will implement measures to reduce the attraction of common ravens (*Corvus corax*) to the Permit Boundary. Specifically, the Permittee will reduce attraction of ravens by limiting food or water subsidies, perch sites, roost sites, or nest sites within the Permit Boundary. The Permittee will also contribute to the comprehensive Regional Raven Management and Monitoring Program (Raven Program) in the California Desert Conservation Area, which was established to address the regional threat that increased numbers of ravens pose to desert tortoise recovery efforts (USFWS 2010c). To offset the Project's potential to contribute to a regional increase in raven numbers, the Permittee will contribute funds to the Raven Program. Per the Raven Program guidance (USFWS 2010c) the amount paid would be a payment based on \$105 per acre of estimated total permanent disturbance of 500 acres. The Permittee will provide documentation to the USFWS that this fee has been deposited into the sub-account of the Renewable Energy Action Team (REAT) account held by the National Fish and Wildlife Foundation.

The Permittee will implement appropriate measures during construction and O&M to control new food and water subsidies, perch sites, roost sites, and nest sites. Construction-phase impacts are considered more temporary in nature than operational impacts and will therefore require temporary management practices to avoid or minimize the potential to attract ravens. Construction-phase conditions of concern include ponding water, creation of potential nest and roost sites, food and waste management, and food sources from soil disturbance (i.e., wildlife that is killed or injured during construction). Construction phase impacts will also be applicable to decommissioning and restoration phases of the Project. O&M-phase impacts are considered ongoing impacts and will therefore require ongoing management practices to avoid or minimize the potential to attract ravens. O&M-phase conditions of concern include perching, roosting and nesting sites, and food subsidy and waste management.

Perching, Roosting, and Nesting Sites

If ravens are identified roosting or nesting on building materials, equipment, waste piles, or other construction debris, hazing may be employed as deemed necessary to limit habitual use of the Permit Boundary by the species.

To avoid introducing new subsidies after construction by minimizing the attractiveness of Project components, the Permittee may use physical bird deterrents such as, but not limited to, bird spikes, Bird-B-Gones, and WhirlyBirds. If common ravens successfully nest on a Project

component, the Permittee will contact the CDFW and USFWS to assist with nest removal if deemed necessary.

Ponding Water

To minimize the occurrence of ponding water from Project activities during construction, the application rates of water for dust suppression activities will be predetermined to minimize excessive application. The application rate will consider soil infiltration and evaporation rates. The site will be patrolled to ensure water does not puddle for long periods (more than 1 hour) and recommendations will be made for reduced water application rates where necessary. Any fill stations will be designed to adequately drain water to prevent ponding.

Food Subsidies and Waste Management

A trash abatement program will be established during the construction phase and extended through the O&M phase. Trash and food items will be contained in closed, secured containers and removed at least weekly to reduce the attractiveness to opportunistic predators such as ravens. The construction site and access roads will be monitored to expedite proper disposal of roadkill. In addition, a Worker Environmental Awareness Plan (WEAP) will assist in ensuring that no trash or roadkill is available that might attract desert tortoise predators.

To the extent feasible, dead or injured wildlife found during Project construction and O&M will be removed to further minimize attraction of common ravens to the Permit Boundary, including associated access routes to the Permit Boundary. Removal of dead and injured wildlife will be conducted in accordance with the requirements of any applicable permits and plans.

2.1.3 Avoidance and Minimization Measures

The Permittee will implement additional measures to avoid and minimize impacts to biological resources, including desert tortoise and its habitat. Table 2-1 provides the avoidance and minimization measures that will be implemented during pre-construction, construction, O&M, and decommissioning of the solar facility.

Table 2-1
Avoidance and Minimization Measures Applicable to the Solar Facility

Measure Acronym^a	Measure Description	Timing
General Measures (GM)		
GM-1	The construction contractor(s)/crew(s) will be educated about the biological constraints of the Project by an Authorized Biologist (AB) or Desert Tortoise Monitors (DTMs) under the direction of an AB. All project personnel working in the Project area will attend a Worker Environmental Awareness Program (WEAP), developed and presented by a project biologist prior to the commencement of construction activity. Logs of personnel who have taken the training will be kept on-site at the construction office.	Pre-construction
GM-3	New roads planned for construction will not extend beyond the planned impact area that will be flagged prior to construction. All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.	Pre-construction, construction, decommissioning
GM-4	Spoils (i.e., excavated material such as topsoil and rock) will be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas will be marked to define the limits of where stockpiling can occur.	Pre-construction, Construction, operations and maintenance (O&M), decommissioning
GM-5	Erosion and sediment control best management practices (BMPs) will be employed to minimize impacts during construction, O&M, and decommissioning.	Construction, O&M, decommissioning
GM-6	Fueling of equipment during all phases of the Project will take place within the solar facility. Equipment will be checked for leaks prior to operation and repaired as necessary. Spill kits will be available at the solar facility to respond to potential and actual spills in accordance with the Storm Water Pollution Prevention Plan BMPs.	Pre-construction, construction, O&M, decommissioning
GM-7	Construction activities and ground-disturbing O&M activities outside of desert tortoise exclusion fencing will be monitored by one or more ABs. A designated lead AB will have the ultimate responsibility for these avoidance and minimization measures.	Pre-construction, construction, O&M (only as specified), decommissioning
GM-8	The Permittee will control the introduction of exotic plant species by implementation of weed control activities. The introduction of exotic plant species will be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention, limiting the size of any vegetation and/or ground disturbance to the absolute minimum, and limiting ingress and egress to defined routes. Preventing exotic plants from entering the Project site via vehicular sources will include measures such as implementing Trackclean or other methods of vehicle cleaning for vehicles coming and going from the Project site. Earth-moving equipment will be cleaned and inspected prior to transport to the Project site.	Construction, O&M, decommissioning
Desert Tortoise Measures (DT)		
DT-1	Prior to construction activities, the Permittee will prepare a site-specific Desert Tortoise Relocation Plan. ^b The plan will provide details on desert tortoise clearance surveys and relocation, and will be consistent with current U.S. Fish and Wildlife Service (USFWS) guidelines (USFWS 2009).	Pre-construction

Measure Acronym ^a	Measure Description	Timing
DT-2	<p>The Permittee will submit the name and statement of qualifications in accordance with USFWS format of all proposed ABs to resource agency representatives for review and approval at least 30 days prior to initiation of any ground-disturbing activities and pre-activity surveys. Project construction activities will not begin until the ABs are approved by the resource agencies. ABs will lead the handling and relocation of desert tortoise when necessary. DTMs will ensure compliance with the protection measures but may only assist with clearance surveys under the direction of an AB. DTMs may handle desert tortoises at the discretion and under the supervision of an AB. Workers will immediately notify the AB or DTM of all desert tortoise observations. The ABs may be replaced with a new AB at any time during construction, O&M, or decommissioning with 30 days notification to the agencies. If there are unforeseen circumstances (e.g., AB becomes ill, changes jobs, etc.), agencies may be provided 14 days notification.</p>	Pre-construction
DT-3	<p>Prior to ground disturbance at the solar facility, the solar facility will be fenced with permanent desert tortoise exclusion fencing to keep desert tortoises in neighboring habitat from entering the facility during construction, O&M, and decommissioning phases. Where the location of desert tortoise exclusion fencing corresponds to the solar facility perimeter security fence, it may be attached to the security fencing. The exclusion fence will follow current fence specifications established by USFWS (2009). Where fence burial is not possible, the mesh will be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent desert tortoise from digging under the fence. Desert tortoise exclusion gates will be established at all solar facility entry points. Temporary fencing will be installed where necessary for each Project component during construction activities to prevent desert tortoise entry during construction. Temporary fencing will follow guidelines for permanent fencing, and supporting stakes will be sufficiently spaced to maintain fence integrity. Clearance of the desert tortoise exclusion fencing location must occur within 24 hours prior to fence installation. All desert tortoise exclusion fence construction will be monitored by a DTM to ensure that no desert tortoise is harmed. Following installation, the fencing will be inspected monthly and immediately after all major rainfall events. Any damage to the fencing will be temporarily repaired immediately and permanently repaired within 3 days of observing the damage and reported to the resource agencies to determine whether additional measures are necessary. Ground-disturbing activities at the solar facility may begin immediately after fence installation and tortoise clearance and relocation.</p>	Pre-construction
DT-4	<p>After fence installation, ABs or DTMs under the direction of an AB will conduct clearance surveys for desert tortoise within the fenced solar facility. A minimum of two surveys without finding any desert tortoise or new desert tortoise sign must occur prior to declaring the site clear of desert tortoise. All burrows that could provide shelter for desert tortoise will be excavated during the first clearance survey. Any desert tortoise found within the fenced solar facility will be moved to a location in accordance with the Project's Desert Tortoise Relocation Plan (Appendix A).</p>	Pre-construction
DT-6	<p>Following clearance surveys, the AB will prepare a report that documents the survey methods used, names of surveyors, timing, weather, handling methods, capture and release locations of all desert tortoise found, individual desert tortoise data, and other relevant data. This report will be submitted within 15 days of completion of the clearance surveys to resource agency representatives.</p>	Pre-construction

Measure Acronym ^a	Measure Description	Timing
DT-7	The Permittee will appoint ABs and DTMs to oversee compliance with the avoidance and minimization measures for desert tortoise. The AB or DTM will be present during construction activities, and will have the right to halt all activities that are in violation of the desert tortoise protection measures. Work will proceed only after hazards to the desert tortoise are removed and the species is no longer at risk, or the AB has moved the individual from harm's way in accordance with the Project's Desert Tortoise Relocation Plan (Appendix A). The AB and DTM will have a copy of all the compliance measures while any work is being conducted on-site.	Pre-construction, construction, O&M, decommissioning
DT-8	Intentional killing or collection of special-status plant or wildlife species, including desert tortoise, in the Project site and surrounding areas will be prohibited. The ABs and DTMs (during construction) will be notified immediately of any such occurrence. An AB will be responsible for notifying resource agency representatives of any such occurrence within 24 hours.	Pre-construction, construction, O&M, decommissioning
DT-9	For emergency response situations, the AB will notify resource agency representatives within 24 hours by telephone, fax, or electronic mail communication.	Pre-construction, construction, O&M, decommissioning
DT-11	Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches stored less than 8 inches aboveground, outside a fenced area of desert tortoise habitat, and left unattended for 1 or more days during the desert tortoise active period (i.e., early March through early June and September through early November) will be inspected for desert tortoise before the material is moved, buried, or capped. As an alternative, all such structures may be capped or placed on pipe racks.	Pre-construction, construction, O&M, decommissioning
DT-12	In the event a desert tortoise is injured or killed resource agency representatives will be notified immediately by phone. Notification will occur no later than 12 noon on the business day following the event if it occurs outside of normal business hours so that the resource agencies can determine if further actions are required to protect the species. Written follow-up notification via fax or electronic communication will be submitted to the resource agencies within 2 calendar days of the incident, and will include the following information, as relevant: <u>Injured Desert Tortoise.</u> If a desert tortoise is injured as a result of Project-related activities during construction, O&M, or decommissioning, the AB will immediately take it to a wildlife rehabilitation and/or veterinarian clinic approved by the resource agencies. Any veterinarian bills for such injured animals will be paid for by the Permittee. Following phone notification, as required above, resource agency representatives will determine the final disposition of the injured animal, if it recovers. Written notification will include, at a minimum, the date, time, location, circumstances of the incident, and name of the facility where the animal was taken. <u>Desert Tortoise Fatality.</u> If a desert tortoise is killed by Project-related activities during construction, O&M, or decommissioning, a written report with the same information as an injury report will be submitted. The desert tortoise will be salvaged according to guidelines described in <i>Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoise</i> (Berry 2001). The Permittee will pay to have the desert tortoise transported and necropsied. The report will include the date and time of the finding or incident.	Pre-construction, construction, O&M, decommissioning
DT-13	No later than 2 days following the above-required notification of an injured or killed desert tortoise, the Permittee will deliver to resource agency representatives via fax or electronic communication the written report from the AB describing all reported incidents of an injured or killed desert tortoise, identifying who was notified and explaining when the incident occurred.	Pre-construction, construction, O&M, decommissioning

Measure Acronym ^a	Measure Description	Timing
DT-14	On an annual basis, the AB will prepare a report for resource agency representatives, documenting the effectiveness and practicality of the avoidance, minimization, and mitigation measures that are in place, and making recommendations for modifying the measures to enhance desert tortoise protection, as needed. The report will also provide information on the overall biological-resources-related activities conducted, including the WEAP training, clearance/pre-activity surveys, monitoring activities, and any observed desert tortoises, including injuries and fatalities.	Pre-construction, construction, O&M, decommissioning
DT-15	The AB will prepare annual monitoring reports that address the management of the mitigation lands acquired to compensate for impacts to desert tortoise. The annual report will be submitted to the Permittee and resource agency representatives at the end of each calendar year, for the duration of the permit.	Pre-construction, construction, O&M, decommissioning
DT-16	The Permittee will implement measures to ensure construction, O&M, and decommissioning of the Project do not attract ravens to the Permit Boundary by creating food or water subsidies, perch sites, roost sites, or nest sites.	Pre-construction, construction, O&M, decommissioning
DT-17	An AB will be retained as on-call support during the O&M phase to assist with DT responses and project reporting as necessary. In the event that a desert tortoise is found within the solar facility during the O&M phase, the AB will capture and relocate the animal to a safe location according to the USFWS protocol (USFWS 2009) and the Desert Tortoise Relocation Plan (Appendix A). An onsite Field Contact Representative (FCR) will be trained by the AB to handle DT in-case of emergencies where a DT is in imminent danger. The FCR will handle the DT in accordance with the approved Desert Tortoise Relocation Plan.	O&M
DT-18	The AB will responsible for WEAP trainings, surveys, compliance monitoring, and reporting.	Pre-construction, construction, O&M, decommissioning
DT-19	The potential for vehicles to strike desert tortoises will be minimized by educating employees on the proper procedures for operating vehicles and equipment within the Project site. Personnel will use established roadways (paved or unpaved) in traveling to and from the Project area. Cross-country vehicle and equipment use outside of designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of desert tortoise, speed limits shall not exceed 25 miles per hour for travel outside of the permanent tortoise exclusion fence. The AB will define specific speed limits for Project areas depending on site conditions such as the likelihood of desert tortoise occurrence, visibility conditions, and weather.	Pre-construction, construction, O&M, decommissioning
DT-20	A trash abatement program will be established for the Project to reduce the attractiveness to opportunistic predators of desert tortoise such as common ravens (<i>Corvus corax</i>), coyotes (<i>Canis latrans</i>), and free-roaming dogs. Trash and food items will be kept in closed containers, removed as needed, and disposed of at an appropriate off-site landfill. Dead and injured wildlife found within the Permit Boundary will also be removed, as needed, to reduce attraction of opportunistic predators. Dead and injured wildlife will be handled and removed in accordance with any applicable Project permits and plans.	Pre-construction, construction, O&M, decommissioning
DT-21	Workers will be prohibited from bringing pets and firearms to the Project site.	Pre-construction, construction, O&M, decommissioning

Measure Acronym ^a	Measure Description	Timing
DT-22	Any time a vehicle or construction equipment is parked in desert tortoise habitat outside of the permanent tortoise exclusion fence, the ground under the vehicle will be inspected for the presence of desert tortoise before the vehicle/equipment is moved. If a desert tortoise is present, the vehicle/equipment will not be moved until the desert tortoise moves on its own away from the vehicle/equipment. If it does not move within 15 minutes during construction, the AB will capture and relocate the animal to a safe location according to USFWS protocol. During O&M, a trained and approved FCR may move a DT out of harm's way that does not move on its own in accordance with the approved Desert Tortoise Relocation Plan (Appendix A).	Pre-construction, construction, O&M (only as specified), decommissioning
DT-23	All vehicles and equipment will be in proper working condition to ensure that no potential exists for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB and DTM will be immediately (i.e., same day) informed of any hazardous spills. Hazardous spills will be immediately cleaned up and the surface recontoured so it does not pose a hazard to desert tortoise. The contaminated soil will be properly disposed of at a licensed facility.	Pre-construction, construction, O&M, decommissioning
DT-24	Water or dust palliatives will be applied to the construction ROW, dirt roads, trenches, spoil piles, and other areas where ground disturbance takes place to minimize dust emissions and topsoil erosion. Dust palliatives will be nontoxic to wildlife and plants. For construction during the desert tortoise active season, an AB or DTM will patrol areas of disturbance to ensure that water does not puddle for long periods and attract desert tortoise, common ravens, or other wildlife to the Project site. Operational ponding will be avoided through careful grading and hydrologic design.	Pre-construction, construction, O&M (only as specified), decommissioning

^a Avoidance and minimization measures applicable to only the gen-tie line (i.e., GM-2, DT-5, and DT-10) are not included in this table (see Appendix B for measures specific to the gen-tie line).

^b A Desert Tortoise Relocation Plan has been prepared and reviewed by the resource agencies and is included as Appendix A of this Habitat Conservation Plan.

2.2 Covered Activities

This section describes the specific activities associated with the Project that will be covered by the ITP. Covered activities described herein include pre-construction, construction, O&M, and decommissioning activities associated with the solar facility, including all project activities as described in the Project Description in Section 2.1, that may result in incidental take of desert tortoise. The ITP will also cover activities necessary for implementing PDFs (see Section 2.1.3) and the conservation strategy of this HCP (see Chapter 5). These “other covered activities” are discussed below in Section 2.2.5. Activities associated with only the gen-tie line portion of the Project are not proposed for coverage as the USFWS and BLM are consulting on these activities pursuant to section 7(a)(2) of the ESA (see Section 1.1).

2.2.1 Pre-construction Covered Activities

Pre-construction compliance for the solar facility will entail preparation of all applicable environmental management plans, installation of the entry driveway, clearing and leveling of a small (0.25-acre) staging area, and installation of permanent desert tortoise exclusion fencing.

Installation of tortoise fencing will require clearing and grading of a 30-foot-wide area around the perimeter of the site. This activity will be performed under the direction of an Authorized Biologist (AB), will employ only a Bobcat and a water truck, and will occur over a 1 to 4-week period. Concrete footers will be installed at access gates along the perimeter fencing to minimize gaps resulting from uneven road surfaces. An alternative approach may be used if it is determined by the AB to provide equivalent protection for desert tortoise exclusion.

2.2.2 Construction Covered Activities

This section describes solar facility construction activities that may affect desert tortoise or its habitat. Construction of the solar facility will take place in three overlapping phases:

- Phase 1: Site preparation
- Phase 2: PV system installation
- Phase 3: Inverters, substation, and system interconnection

Construction is anticipated to require approximately 9 months. The following subsections describe the activities covered by this HCP that will take place during each construction phase of the solar facility.

2.2.2.1 Solar Facility Site Preparation

Solar facility site preparation will include preparation of the laydown areas, construction of the internal access roads, preparation of the PV field, preparation of the substation, installation of the array posts, installation of the conduits, construction of the relay house, and construction of the O&M building. In addition, if any recreational off-road travel routes require relocation, such actions will be covered by this permit. Relocation of off-road travel routes may include grubbing of vegetation to facilitate creation of a new two-track route or grading of the road to facilitate more open route travel.

A construction staging area will be established for construction personnel and the secure storage of equipment, and will be in the same location as the future substation (Figure 2-1). As construction of the solar arrays is completed, the staging area will be converted for use as a substation. Equipment storage may include locking containers, additional temporary fencing, and other methods of protection. Temporary air-conditioned construction offices will be trucked in along with a first aid station for site personnel. Potable water and portable toilets will be delivered to the site for use during construction.

Construction access road locations will correspond to the future internal access roads. The roads will be 20 feet wide and will consist of compacted native material surfaced with gravel or

compacted soil. A stabilized entrance/exit will be provided to clean vehicle wheels prior to exiting the construction area.

Although minimal site grading will occur on the solar facility, there is potential that the entire site will be disturbed to at least a minimal degree. For purposes of this HCP, it is assumed that vegetation removal will occur on the entire solar facility, although soil disturbance during the construction process will probably be limited to the first several inches of soil except where there is deeper incising related to drainage features. No mass grading or leveling of the site is proposed, and no import or export of soil will be required. The need for minimal cut and/or fill is anticipated and, if required, will be balanced on-site.

The Permittee will implement erosion control, drainage plans, and storm water management plans/mitigation pursuant to Kern County-approved grading plans and applicable Kern County and state guidelines (see Section 2.2.1). The goal of these plans is to ensure that Project activities do not affect off-site lands. Storm water will continue to be directed off-site into the existing storm-water channel that runs parallel to SR-14. Dust control oversight will be conducted in accordance with Kern County guidelines.

Permanent fencing will be constructed around the site during site preparation and will remain in place for security reasons during operation of the solar facility. All perimeter fencing will include desert tortoise exclusion fencing constructed in accordance with USFWS specifications.

Equipment used for site preparation will include dozers; water trucks; graders; flatbed trucks; skid steers; front-end loaders; compactors; trenchers; backhoes; and miscellaneous light-, medium-, and heavy-duty vehicles.

Up to a maximum of approximately 500 acres will be temporarily and permanently disturbed within the fenceline of the solar facility during site preparation. However, an effort will be made to minimize site grading and vegetation removal to the extent feasible to safely install all equipment. After construction, native vegetation will be allowed to reestablish up to a maximum height of 18 inches within the solar facility fenceline. Noxious weeds will be managed and suppressed during O&M of the Project.

2.2.2.2 PV System Installation

After the solar facility has been properly cleared and graded, underground and aboveground work will commence. Underground cabling will be trenched and flagged/staked as aboveground teams survey and plan array boundaries and string locations.

System installation will begin with teams installing the mounting and support structures, which will incorporate steel/concrete piers driven up to 10 feet into the ground. The exact design will

be finalized pending specific soil conditions, and the methods may include pile-driving and/or vibration-driven screw piles and aboveground ballast foundations. After installation of the support structures, PV panel installation and electrical work will commence.

The combiner boxes and inverters will be constructed on concrete pads or footings. The footings, foundations, and pads for the substation will be constructed on concrete obtained from an off-site source.

Electrical conduits and electrical wiring will be installed and buried in designated areas throughout the site. Trenching to a depth of up to 4 feet will be required to bury underground conduits and wiring.

Equipment used during construction and installation of the solar facility will include pickup trucks; water trucks; flatbed trucks; pile drivers; forklifts; welders; and miscellaneous light-, medium-, and heavy-duty trucks.

2.2.2.3 Inverter, Substation, and Interconnection System Installation

The final stage of construction of the solar facility will include installation of inverters and substation equipment, installation of the electrical conduit and collection system, battery system installation, system testing and commissioning, site cleanup, and demobilization of the construction effort. Kern County will inspect the site and approve final occupancy. All debris will be removed from the site and disposed of properly. Where appropriate, revegetation will be implemented prior to final completion.

Equipment used during this phase will include pile drivers; trenchers; backhoes; cranes; aerial lifts; concrete trucks; and miscellaneous light-, medium-, and heavy-duty trucks.

2.2.3 Operation and Maintenance Covered Activities

This section describes O&M activities that may affect desert tortoise or its habitat. O&M activities associated with the Project will be minimal, and O&M activities conducted entirely within the solar facility (e.g., panel washing) will have limited to no effect on desert tortoise because the species will be excluded from the facility by fencing (see Section 2.2.1); however, the goal of this HCP is to cover all activities that may occur during O&M. O&M activities associated with the solar facility that may affect desert tortoise or its habitat include inspection and repair of security and desert tortoise exclusion fencing, routine panel washing, repair or replacement of solar facility components, and fire control. These covered O&M activities are described further in the following subsections.

2.2.3.1 Inspection and Repair of Security and Desert Tortoise Exclusion Fencing

Inspection and repair of security and desert tortoise exclusion fencing will occur as needed during the life of the Project. Generally, fencing repairs will be less intensive than construction of the fencing; however, in some instances, repairs may require re-clearing and re-trenching areas previously affected during construction of the solar facility. Inspections will occur mostly on foot or by vehicle from within the solar field exclusion fencing; fence repair may require equipment access depending on the location and extent of repair needed. Repairs to security and desert tortoise exclusion fencing will be performed under the direction of an AB.

2.2.3.2 Panel Washing

Panel washing is anticipated to occur routinely during O&M. Panel washing will involve a water truck(s) that would spray each panel approximately four times per year to clean the surface and improve panel efficiency. Water trucks will bring deionized water to the site. Only sufficient water will be used to clean the panel, and application will not result in ponding water underneath panels on-site. Panel washing will not require supervision by an AB given that these activities will be conducted within the desert tortoise exclusion fencing. However, panel washing may result in indirect effects on desert tortoise as well as potential direct effects if a tortoise is able to reenter the site (e.g., vehicle strike) and, thus, is covered by this HCP

2.2.3.3 Repair and Replacement of Solar Facility Components

Repair and replacement of solar facility components will occur as needed during the life of the Project. Repair and replacement of solar facility components may require use of heavy equipment similar to that used during construction of the solar facility (see Section 2.2.2). Repair and replacement of solar facility components will not require supervision by an AB given that these activities will be conducted within the desert tortoise exclusion fencing. However, repair and replacement of solar facility components may result in indirect effects on desert tortoise as well as potential direct effects if a tortoise is able to reenter the site (e.g., vehicle strike) and, thus, are covered by this HCP.

2.2.3.4 Fire Control

A 10,000-gallon water tank will be located on the solar facility for firefighting purposes. Water for the tank will be hauled in from off-site. Meetings will be conducted with local fire agencies to agree on appropriate risk-reduction measures and protocols in the event of a fire. The possibility of fires will be minimized by exercising care when operating utility vehicles within the ROW and access roads, and by not parking vehicles on or in proximity to dry vegetation where hot catalytic converters can ignite a fire. Construction vehicles will carry water and shovels or fire extinguishers. Fire protective mats or shields will be used during grinding or

welding to prevent/minimize the potential for fire. Vegetation clearing around the facility structures (e.g., towers, poles, substations) for fire protection may be required and will be coordinated and cleared with local agencies and in accordance with applicable environmental regulations.

2.2.4 Decommissioning Covered Activities

Generally, decommissioning of the Project will be beneficial to desert tortoise and its habitat; however, the species or its habitat may be affected while implementing decommissioning activities. The solar facility will be subject to decommissioning requirements of the Kern County Planning and Community Development Department. In accordance with Kern County requirements, the Permittee will work with Kern County to put an agreement in place that will ensure the decommissioning of the solar facility after its productive lifetime. Any foundations will be removed and hauled off-site to an approved landfill. A collection and recycling program will be implemented to promote recycling of Project components and to minimize disposal of Project components in landfills. All decommissioning and restoration activities will adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, state, and Kern County regulations.

2.2.5 Other Covered Activities

As described in Section 2.1.3, PDFs will be implemented as part of the Project to address specific impacts that may result from Project implementation. PDFs include storm water pollution prevention, hazardous substance management, weed management, and raven management. The actions associated with the implementation of PDFs may affect desert tortoise. Therefore, the specific actions associated with PDFs, as described in Section 2.1.3, will be covered by the ITP.

In addition, per this HCP's conservation strategy (see Chapter 5), the Permittee will implement measures to avoid, minimize, and mitigate effects to desert tortoise and its habitat. Avoidance and minimization measures that will be implemented as part of pre-construction, construction, O&M, and decommissioning of the solar facility are summarized in Table 2-1. These measures include general and desert-tortoise-specific measures. General measures will generally benefit all biological resources, including desert tortoise and its habitat. Desert-tortoise-specific measures include measures to minimize take of individual tortoises. Although these measures will generally avoid and minimize effects to desert tortoise and its habitat, take may occur during implementation of these measures (e.g., installation of exclusion fencing and handling desert tortoises for relocation purposes). Therefore, implementation of avoidance and minimization measures summarized in Table 2-1 will be covered by the ITP.

Mitigation of unavoidable effects to desert tortoise habitat will be achieved through off-site land acquisition (see Chapter 5). Mitigation lands will be subject to a long-term management program that will be approved by USFWS and implemented by a designated land manager under legal contract with the Permittee. In the course of implementing the long-term management program, there is a remote possibility for take of desert tortoise to occur (e.g., while conducting biological surveys, conducting habitat enhancements, or driving on-site). Therefore, activities conducted on mitigation lands by the designated land manager per the long-term management program will be covered by the ITP.

3.0 ENVIRONMENTAL SETTING/BIOLOGICAL RESOURCES

This chapter describes the existing environmental setting of the Permit Boundary, as well as the status and occurrence of desert tortoise within the Permit Boundary and immediate vicinity. The Project will be located in the western Mojave Desert, west of SR-14 and east of the southern Sierra Nevada. The Permit Boundary is bounded on all sides by undeveloped natural habitat. Elevation in the Permit Boundary ranges from 2,420 to 2,670 feet.

3.1 Climate

The Project will be located in the western Mojave Desert, characterized by low precipitation and atmospheric humidity, high summer temperatures, and relatively cool winter temperatures. Daytime summer temperature ranges from an average of 97.7 degrees Fahrenheit (°F) to 104.3°F. Daytime winter temperature ranges from an average of 28.2°F to an average daytime high of 33.9°F. According to the Western Regional Climate Center (2013), the average annual rainfall for Mojave, California (approximately 12 miles from the Project), was 5.87 inches from 1948 through 2005. The rainy season is from November through March, with the majority of rainfall occurring in January. Summer monsoons emanating from the Gulf of Mexico and Gulf of California also provide moisture, but these storms occur with unpredictable reliability and generally do not appreciably augment annual rainfall totals.

3.2 Topography/Geology/Soils

Topography in the Permit Boundary is generally moderately sloping (2% to 15% slopes) and undulating, with water flowing generally west to east across the site. Soils in the solar facility include Cajon loamy sand and Arizo gravelly loamy sand (Figure 3-1). None of the soils in the Permit Boundary are listed as hydric by the Natural Resources Conservation Service (NRCS) (2010).

3.3 Hydrology

The Project will be located within the Koehn Hydrologic Area of the Fremont Hydrologic Unit (Figure 3-2). Water in this area drains north to Koehn Dry Lake, an endorheic basin (i.e., a closed drainage basin that retains water and allows no outflow to other external bodies of water). The Permit Boundary is located near the bottom of an alluvial fan protruding from the base of Barren Ridge to the east, along SR-14. SR-14 is elevated above the surrounding topography, impounding runoff from the alluvial fan and directing it through an existing reinforced concrete box culvert at the east end of the Permit Boundary. This runoff then joins the primary watercourse east of the highway and is tributary to Pine Tree Canyon Creek, approximately 2 miles north of the Permit Boundary.

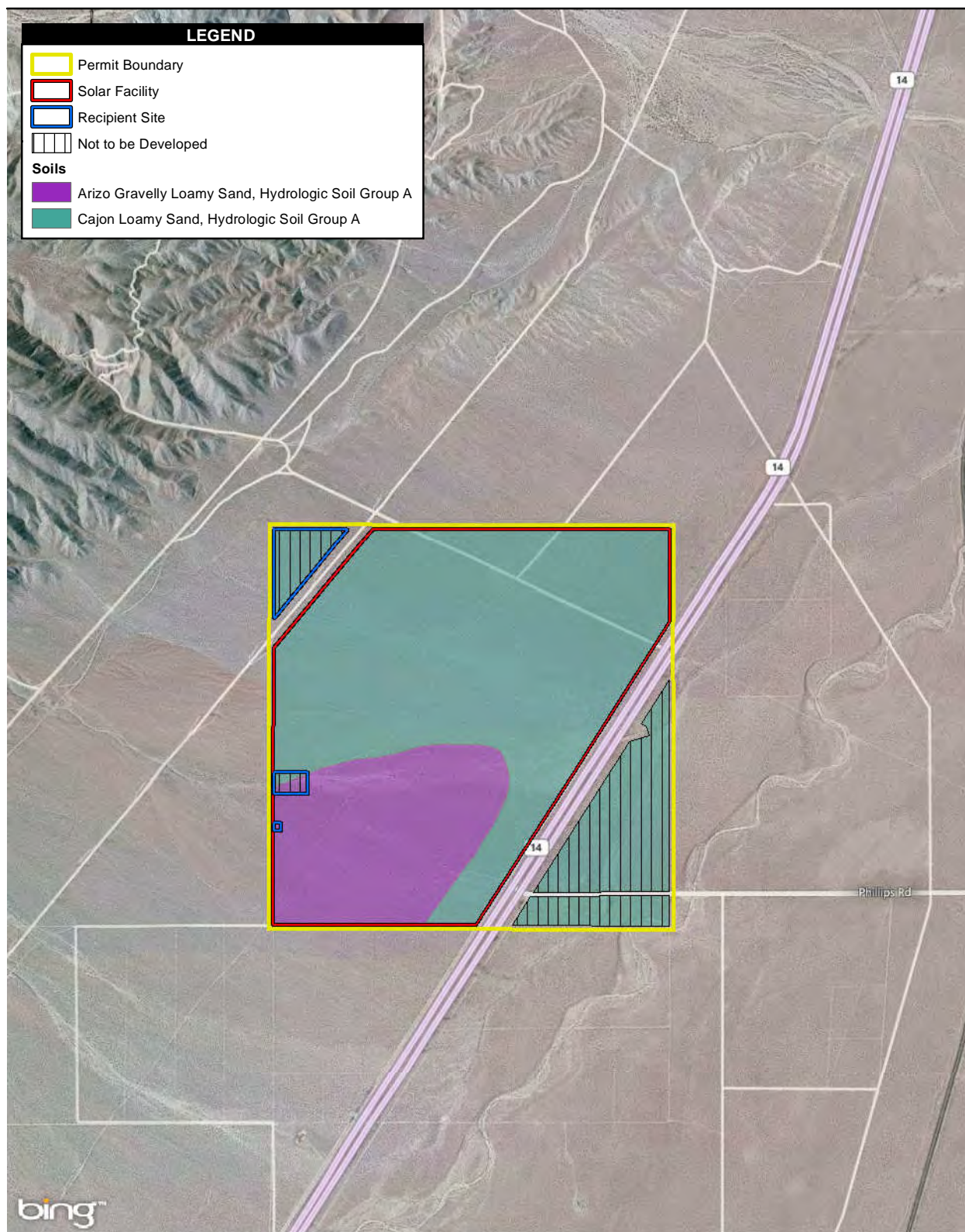
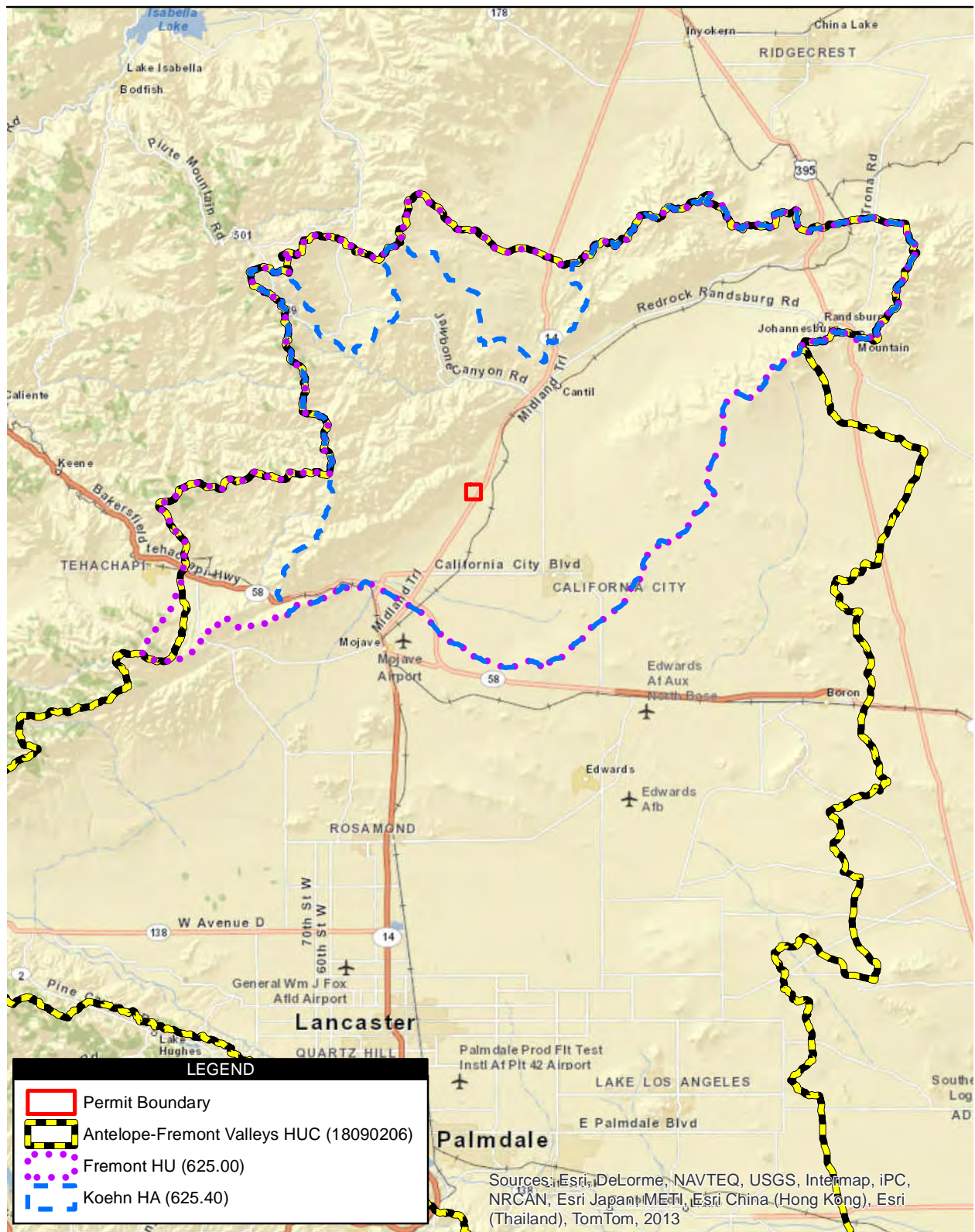


Figure 3-1
Soils Map



Source: Concurrent Energy 2011; ESRI 2011; CalWater 2008

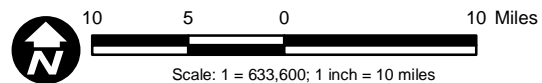


Figure 3-2
Watersheds

3.4 Existing Land Use

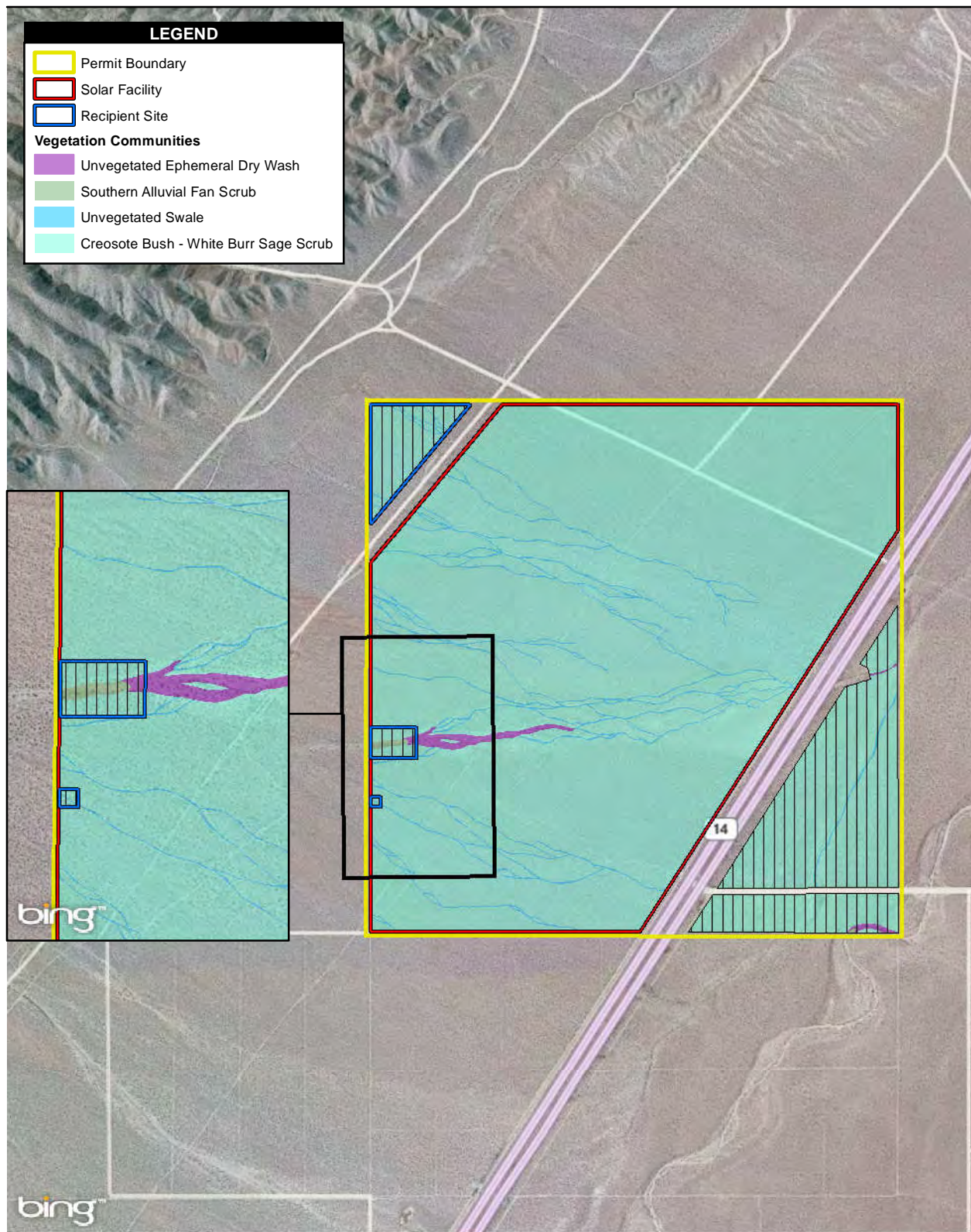
Land uses in the regional vicinity of the Permit Boundary include rural residential areas, recreational off-road-vehicle areas, ecological reserves, grazing, energy infrastructure (e.g., transmission lines), and commercial and industrial areas. A few existing unpaved access roads and BLM designated trails exist within the Permit Boundary, a flood control channel has been constructed along the west side of SR-14 to capture storm water flows, and scattered trash dump sites are present relatively close to SR-14. Evidence of grazing and recreational shooting (skeets and shotgun shells) is also present throughout the Permit Boundary.

3.5 Vegetation Communities and Cover Types

In accordance with the vegetation classification system presented in Sawyer et al. (1995), one vegetation community is present within the Permit Boundary: creosote bush–white burr sage scrub (Rincon 2011b). In addition, three types of aquatic habitat were mapped within the Permit Boundary during a formal jurisdictional delineation of aquatic features within the solar facility (AECOM 2011). Aquatic-related habitats were classified according to both the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979), and included unvegetated swales within the upland habitat, unvegetated ephemeral dry wash, and southern alluvial fan scrub associated with drainages in the Permit Boundary. Vegetation communities are shown in Figure 3-3 and described in the following subsections.

3.5.1 Creosote Bush–White Burr Sage Scrub

This floristic association corresponds to Mojave creosote bush scrub (Holland 1986). Creosote bush–white burr sage occurs throughout the Permit Boundary and is dominated by creosote bush and white burr sage. Associated shrubs and subshrubs are allscale saltbrush (*Atriplex polycarpa*), Nevada ephedra (*Ephedra nevadensis*), scalebroom (*Lepidospartum squamatum*), Cooper’s goldenbush (*Ericameria cooperi*), rubber rabbitbrush (*Ericameria nauseosa*), California buckwheat (*Eriogonum fasciculatum*), cheesebush (*Hymenoclea salsola*), winterfat (*Krascheninnikovia lanata*), and Anderson’s desert thorn (*Lycium andersonii*). Cacti present include Wiggins’ cholla (*Cylindropuntia echinocarpa*). Common herbaceous plants include fiddleneck (*Amsinckia* sp.), filaree (*Erodium* sp.), chia (*Salvia columbariae*), and angled stem buckwheat (*Eriogonum angulosum*). Grass species present in this community consist of red brome (*Bromus rubens*), cheat grass (*B. tectorum*), ripgut (*B. diandrus*), and rattail fescue (*Vulpia myuros*).



Source: AECOM 2013; RE Cinco 2013; Image courtesy of USGS Image courtesy of the Nevada State Mapping Advisory Committee © 2014 Microsoft Corporation © 2013 Nokia © AND

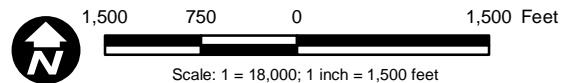


Figure 3-3
Vegetation Communities

3.5.2 Unvegetated Ephemeral Dry Wash

The unvegetated ephemeral dry washes within the Permit Boundary do not support wash-dependent vegetation and are generally linear (however, the southeast ephemeral dry wash does present some sinuosity). The unvegetated ephemeral dry wash within the solar facility abates into the landscape and forms into a swale complex at its eastern terminus.

3.5.3 Unvegetated Swales

The unvegetated swale features occurring within the Permit Boundary are mostly associated with mixed saltbush scrub and Mojave creosote bush scrub. These swales present as multiple linear features forming a significant component of a larger drainage network. The swale features range from approximately 1 to 5 feet in width and collectively compose limited bajada-type topography within the Permit Boundary.

3.5.4 Southern Alluvial Fan Scrub

Southern alluvial fan scrub is a wash-dependent, sensitive vegetation community. A small amount of southern alluvial fan scrub is present within the western portion of the Permit Boundary, before transitioning into unvegetated ephemeral dry wash and unvegetated swale habitat. This community is dominated by allscale saltbush, scale-broom, desert allysum (*Lepidium fremontii*), and green rabbitbrush (*Ericameria teretifolia*), with associated species from the neighboring creosote scrub habitat.

3.6 Desert Tortoise Background and Occurrence

This section summarizes desert tortoise background information, and provides details regarding occurrence of the species within the Permit Boundary and immediate vicinity.

3.6.1 Desert Tortoise Background

USFWS listed desert tortoises north and west of the Colorado River as threatened under the federal ESA on April 2, 1990. CDFW listed desert tortoise as threatened under CESA on August 3, 1989. In 1994 and 2011, USFWS issued the original and revised recovery plans for desert tortoise (USFWS 1994, 2011). USFWS designated critical habitat for desert tortoise in 1994 (59 FR 5820); the nearest critical habitat unit is located approximately 11 miles northeast of the Permit Boundary (Figure 1-3).

Information on the ecology and status of desert tortoise is available in the 5-year review and revised recovery plan (USFWS 2010a, 2011). Additional information on the range, biology, and ecology of desert tortoise is available in Bury (1982); Bury and Germano (1994); Ernst et al. (1994); Jennings (1997); USFWS (2008); Tracy et al. (2004); Van Devender (2002); and

collected papers in *Chelonian Conservation and Biology* (2002, Vol. 4, No. 2), *Herpetological Monographs* (Herpetologists' League 1994, No. 8), and the *Desert Tortoise Council Proceedings*. Boarman (2002) provided a critical review of the literature with regard to threats to desert tortoise and its habitat.

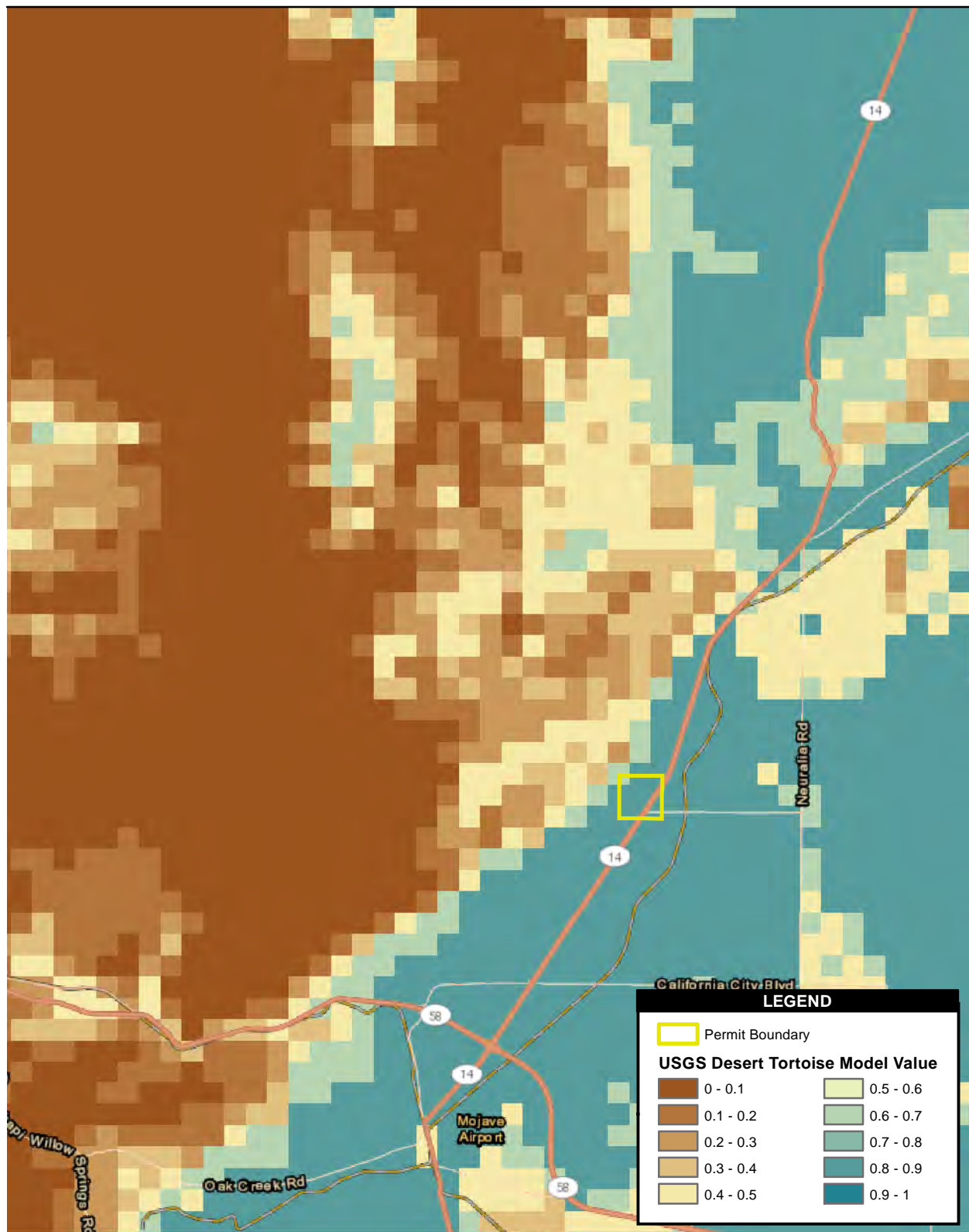
3.6.2 Habitat and Occurrence within the Permit Boundary and Vicinity

The Permit Boundary, located at the far western edge of the desert tortoise's range, provides moderately suitable habitat for the species. The creosote bush-white burr sage scrub that dominates the Permit Boundary is a vegetation community that is characteristic of desert tortoise habitat. Also, gravelly loamy sand and loamy sand soils present within the Permit Boundary are suitable for digging burrows, pallets (i.e., shallow depressions used to regulate body temperature and reduce water loss), or rain catchment basins. While the Permit Boundary supports suitable vegetation and soils, the Permit Boundary does not support the vertical structure (e.g., caliche caves and high banks associated with washes, alluvial fans, and canyons) or rockiness that are generally more typical of the highest quality desert tortoise habitat in the western Mojave Desert.

Habitat within the Permit Boundary is degraded due to proximity to existing transmission line corridors, BLM recreational trails, and SR-14. Data from several studies (Nicholson 1978, Boarman 1994, and LaRue 1993) strongly support the hypothesis that heavily traveled roads are mortality sinks for tortoises. Further, Von Seckendorff Hoff and Marlow (2002) suggested that heavily traveled roads generate a "dead zone" on either side of the road where desert tortoise densities are depressed. The size of depressed zones around roads varies with the amount of use of the road and with other factors. While the exact size of the dead zone associated with SR-14 is not known, traffic on the road is heavy enough to depress the density of tortoises around the road and reduce connectivity of desert tortoise habitats in the area.

Figure 3-4 shows the U.S. Geological Survey (USGS) Species Habitat Model results for the Permit Boundary and vicinity. The USGS model provides output of the statistical probability of habitat potential that can be used to map potential areas of desert tortoise habitat (Nussear et al. 2009). Model scores range from 0 to 1, with a model score of 1 corresponding to areas with the highest habitat potential for desert tortoise. The USGS model score for the Permit Boundary ranges from 0.6 to 0.8. It should be noted, however, the analysis used by USGS's model does not account for anthropogenic changes (e.g., grazing) that may have altered habitat with relatively high potential into areas with lower potential.

Desert tortoise surveys were conducted in accordance with the *Pre-Project Survey Protocol for Potential Desert Tortoise Habitats* (USFWS 2010b) for the solar facility in September and October 2010 (Sundance Biology, Inc. 2010). Surveyors walked 191, 1.2-mile transects spaced



Source: RE Cinco 2013, Copyright:© 2014 Esri, DeLorme, HERE, TomTom; USGS-NHP 2003

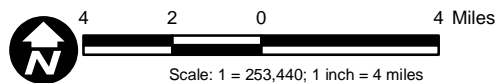


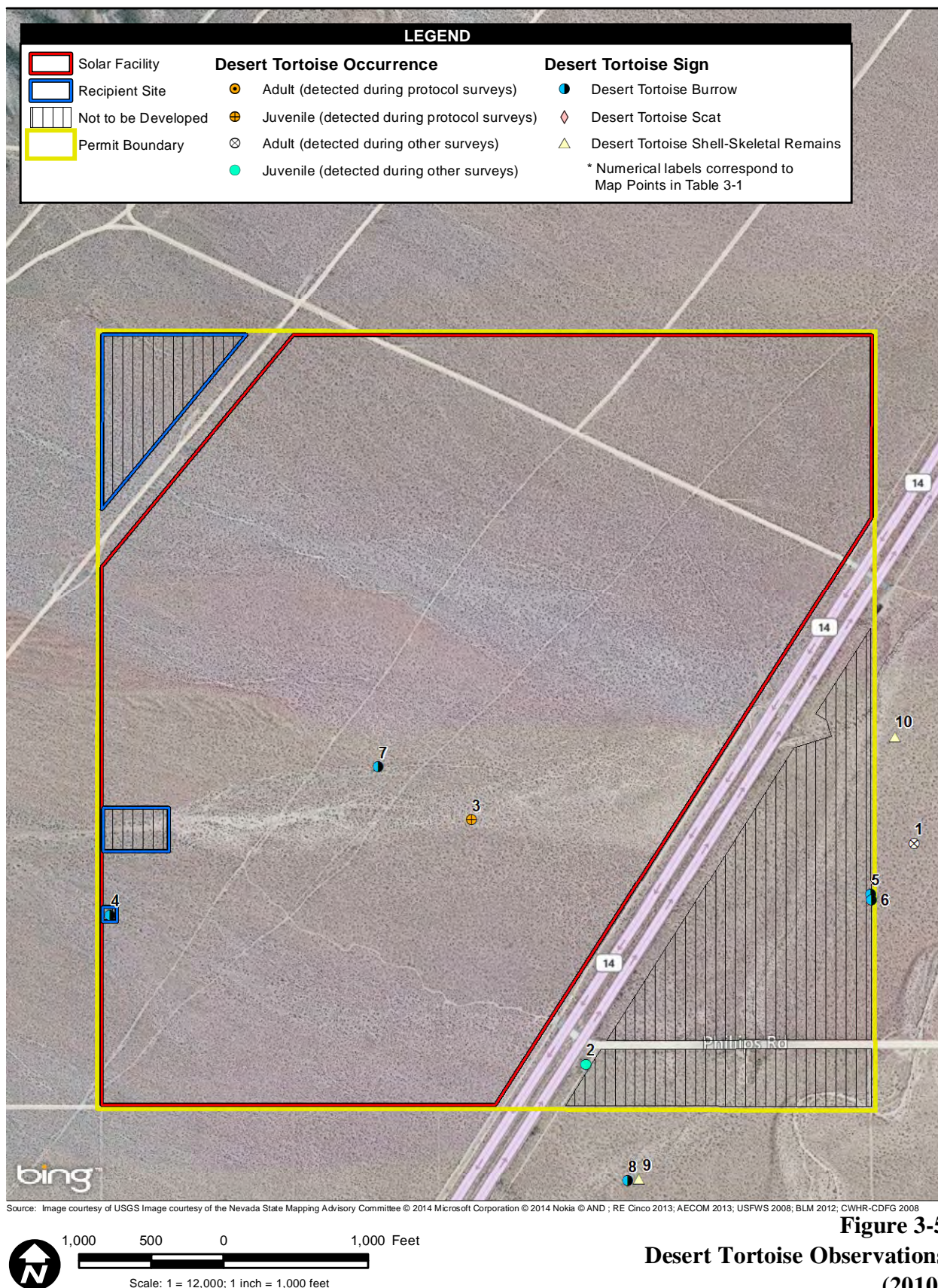
Figure 3-4
USGS Desert Tortoise Habitat Model

approximately 10 meters (30 feet) between transect centerlines (the standard width for desert tortoise presence/absence surveys) that covered the entirety of the 594-acre private parcel within which the solar facility will be constructed. In accordance with the desert tortoise survey protocol (USFWS 2010b), 200-meter Zone of Influence transects were not conducted given that the private parcel is non-linear and greater than 200 acres.

One juvenile (midline carapace length [MCL] less than 180 millimeters [mm]) was observed in a burrow within the solar facility during 2010 protocol surveys (Figure 3-5). Two additional desert tortoise individuals were documented within approximately 300 feet of the Permit Boundary during non-protocol surveys in 2010 (Figure 3-5). One adult female was documented east of the Permit Boundary during a burrowing owl survey (Sundance Biology, Inc. 2010), and the other desert tortoise was a juvenile male (approximately 165 mm MCL) discovered at the intersection of SR-14 and Phillips Road during field reconnaissance surveys (Rincon 2011a). Both of these individuals were observed east of SR-14; therefore, it is unlikely that these individuals use the portion of the Permit Boundary that will be developed for normal home range activities (e.g., foraging) given the barrier to movement that SR-14 creates.

In addition to these sightings, suitable burrows (some with scat or tracks) were detected within and outside the solar facility boundaries. Desert tortoise shell-skeletal remains were also observed south of the solar facility during 2010 surveys. Observations of desert tortoise individuals, burrows, and shell-skeletal remains recorded during surveys conducted for the solar facility are summarized in Table 3-1.

As some desert tortoises may be missed during focused surveys, the desert tortoise survey protocol (USFWS 2010b) provides a table to estimate the number of adult tortoises within a survey area based on several factors. However, juveniles (MCL less than 180 mm) and individuals observed during non-protocol surveys are excluded from the USFWS equation. Therefore, given the data available for the Project, an estimate of desert tortoises within the 500-acre solar facility was generated based on recent densities reported for the Fremont-Kramer monitoring stratum during annual range-wide monitoring conducted by USFWS (USFWS 2012a; 2012b; and 2012c). The average density of desert tortoise with MCL greater than 180 mm for the Fremont-Kramer monitoring stratum between 2010 and 2012 was approximately 2.7 tortoises per square kilometers (or approximately 1.1 desert tortoises per 100 acres), with a 95% confidence interval between approximately 2.2 and 3.5 tortoises per square kilometers (or approximately 0.9 to 1.4 desert tortoises per 100 acres). Therefore, using the upper 95% confidence interval of the density of desert tortoises found with critical habitat, the 500-acre portion of the Permit Boundary that will be developed as part of the Project may support up to seven desert tortoises with MCL greater than 180 mm.



The number of desert tortoises smaller than 180 mm is likely subject to greater changes over shorter periods of time because eggs hatch, the mortality rates of small animals are higher, and smaller individuals grow into the greater-than-180-mm size class; therefore, the number of smaller desert tortoises was not estimated. However, given survey results, it is expected that few small individuals are present onsite.

Table 3-1
Summary of Desert Tortoise Observations
Recorded During Solar Facility Surveys

Map Point ^a	Observation	Location (NAD 82, Zone 11)		Comments
		Easting	Northing	
1	Desert Tortoise Individual	403636	3895996	2010: Adult female, detected approximately 300 feet east of the Permit Boundary, east of State Route 14 (SR-14)
2	Desert Tortoise Individual	402940	3895537	2010: Juvenile (MCL approx. 165 mm) male desert tortoise observed at SR-14 and Phillips Road intersection
3	Desert Tortoise Individual	402704	3896055	2010: Juvenile (MCL \leq 180 mm) observed inside burrow, west of SR-14 and within area to be developed for solar facility 2011: Juvenile observed inside same burrow
4	Desert Tortoise Burrow	401941	3895861	2010: At base of creosote bush in a drainage; 2011: No sign of recent activity/use
5	Desert Tortoise Burrow (active)	403543	3895889	2011: Desert tortoise tracks observed at burrow
6	Desert Tortoise Burrow (active)	403545	3895876	2010: No comments 2011: Sign of desert tortoise activity
7	Desert Tortoise Burrow (2010), Desert Kit Fox Burrow (2011)	402508	3896168	2010: Desert tortoise tracks present; five burrows/den entrances; 2011: Kit fox scat and tracks observed
8	Desert Tortoise Burrow	403026	3895291	2010: Detected approximately 500 feet south of Permit Boundary and east of SR-14 2011: Coyote sign observed
9	Desert Tortoise Shell-Skeletal Remains	403048	3895293	2010: Detected south of Permit Boundary and east of SR-14
10	Desert Tortoise Shell-Skeletal Remains	403597	3896220	2010: Detected east of SR-14 and Permit Boundary

^a Map points correspond to numerical labels on Figure 3-5.

Sources: Sundance Biology, Inc. 2010; Rincon Consultants 2011a, 2011b

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4.0 BIOLOGICAL EFFECTS/TAKE ASSESSMENT

This chapter describes the potential effects to the desert tortoise and its habitat resulting from covered activities described in Chapter 2. Project effects to the desert tortoise anticipated to result from covered activities vary by duration and are categorized by long-term and temporary effects herein. Each type of effect is defined as follows:

Long-term effects are effects of an action on a species or species habitat that are relatively permanent in nature, generally persisting for the life of a project or longer.

Temporary effects are effects of an action on a species or species habitat that can be reversed or restored to pre-project conditions within approximately 12 months.

This chapter quantifies effects to suitable desert tortoise habitat by overlaying the footprint of the solar facility on suitable desert tortoise habitat using a geographic information system (GIS)-based system. Additional mechanisms of desert tortoise take (e.g., direct mortality of individuals) were also identified based on review of covered activity descriptions in Chapter 2 and baseline conditions of the desert tortoise in Permit Boundary (see Section 3.6.2). The likelihood and magnitude of effects to the desert tortoise were assessed for each covered activity in light of avoidance and minimization measures (Table 2-1) that will be implemented as part of this HCP's conservation strategy and the ecology of the desert tortoise. The following subsections describe anticipated desert tortoise effects and the level of incidental take requested for the proposed ITP.

4.1 Desert Tortoise Effects

This section describes the potential effects to desert tortoise resulting from covered activities, including pre-construction, construction, O&M, decommissioning, and other covered activities (i.e., implementation of PDFs, avoidance and minimization measures, and mitigation measures). It is anticipated that potential effects from O&M and decommissioning will be minimal in comparison to potential construction effects, where the majority of habitat disturbance will occur. Further, while the desert tortoise may be affected by PDFs, avoidance and minimization measures, and mitigation measures, these activities are generally considered beneficial to the species.

Table 4-1 summarizes potential adverse effects to desert tortoise and its habitat by each covered activity, and identifies applicable avoidance and minimization measures that will avoid or reduce these effects. Potential desert tortoise effects are detailed in the following subsections.

Quantitative estimates are provided for effects, where feasible. Otherwise, effects are discussed qualitatively. The analyses in the following subsections provide the basis for requested incidental take discussed in Section 4.2.

Table 4-1
Potential Adverse Effects to Desert Tortoise by Covered Activity

Covered Activity	Potential Adverse Desert Tortoise Effects	Applicable Avoidance and Minimization Measures
<i>Construction Covered Activities</i>		
Pre-Construction Activities (i.e., fence installation and geotechnical sampling)	Habitat removal; crushing of burrows/individuals by vehicles/equipment; noise and vibrations; introduction of invasive plants	GM-1; GM-4; GM-7 through GM-8; DT-1 through DT-2; DT-7 through DT-9; DT-11 through DT-16; DT-18 through DT-24
Solar Facility Site Preparation	Habitat removal; crushing of burrows/individuals by vehicles/equipment; noise and vibrations; introduction of invasive plants; deposition of sediment; increased raven predation	GM-1 through GM-8; DT-1; DT-3 through DT-16; DT-18 through DT-24
PV System Installation	Crushing of individuals by vehicles/equipment; noise and vibrations; introduction of invasive plants; increased raven predation	GM-1 through GM-8; DT-1; DT-3 through DT-16; DT-18 through DT-24
Inverters, Substation, and Interconnection System Installation	Crushing of individuals by vehicles/equipment; noise and vibrations; introduction of invasive plants; increased raven predation	GM-1 through GM-8; DT-1; DT-3 through DT-16; DT-18 through DT-24
<i>Operation and Maintenance (O&M) Covered Activities</i>		
Inspection and Repair of Security and Desert Tortoise Exclusion Fencing	Crushing of burrows/individuals by vehicles/equipment; introduction of invasive plants; deposition of sediment	GM-4 through GM-8; DT-1; DT-7 through DT-9; DT-11 through DT-13; DT-16 through DT-24
Panel Washing	Noise and vibrations; introduction of invasive plants; deposition of sediment; increased raven predation; vehicle strikes	GM-4 through GM-8; DT-1; DT-7 through DT-9; DT-11 through DT-13; DT-16 through DT-24
Repair and Replacement of Solar Facility Components	Noise and vibrations; introduction of invasive plants; deposition of sediment; increased raven predation; vehicle strikes	GM-4 through GM-8; DT-1; DT-7 through DT-9; DT-11 through DT-13; DT-16 through DT-24
Fire Control	Crushing of individuals/burrows by vehicles/equipment; vehicle strikes	NA ^a
<i>Decommissioning Covered Activities</i>		
Solar Facility Restoration	Crushing of burrows/individuals by vehicles/equipment; noise and vibrations; introduction of invasive plants; deposition of sediment	GM-1 through GM-8; DT-1 through DT-4; DT-6 through DT-16; DT-18 through DT-24
<i>Other Covered Activities</i>		
Implementation of PDFs	Poisoning of individuals from chemicals and other hazardous materials	GM-6; GM-8; DT-7
Implementation of Avoidance and Minimization Measures	Injury or mortality of individuals during clearance surveys and relocation efforts; transmittance of disease during handling	DT-2; DT-3; DT-7
Long-term Management of Mitigation Lands (if applicable)	Crushing of burrows/individuals by vehicles; disturbance of individuals during monitoring/land management activities	NA

^a Potential adverse effects to the desert tortoise during responses to fire. Response to fire will constitute an emergency situation; therefore, avoidance and minimization measures are not applicable.

4.1.1 Construction Effects

Construction activities covered by this HCP include pre-construction activities; site preparation of the solar facility; PV system installation; and inverter, substation, and interconnection system installation (see Section 2.2.1 and Section 2.2.2). Generally, the potential effects to desert tortoise resulting from each construction covered activity are similar, although the magnitude and duration of effects may vary. Therefore, the effects resulting from each construction activity are discussed generally in this subsection with references to specific construction covered activities associated with each stage, as necessary.

The entire Permit Boundary, with the exception of SR-14, was determined to support suitable habitat for the desert tortoise. Grading, trenching, and vegetation removal during site preparation of the solar facility (including pre-construction covered activities such as fencing installation) will affect up to approximately 500 acres of suitable desert tortoise habitat. Effects to suitable desert tortoise habitat are considered long term because habitat effects will span the life of the Project. Long-term direct effects to suitable desert tortoise habitat will be mitigated through off-site land acquisition (see Chapter 5).

Long-term effects to suitable desert tortoise habitat could also result from potential introduction of invasive plants and deposition of sediment into undeveloped areas of the Permit Boundary and vicinity. Invasive plants introduced by construction equipment or personnel may outcompete native plants once established, potentially reducing habitat quality by diminishing desert tortoise forage and impeding movement. Sediment from developed portions of the Permit Boundary may be washed away from these areas during periods of heavy rains and flooding, potentially affecting existing desert tortoise burrows and forage. The potential effects associated with sediment disposition and invasive plants will be minimized with implementation of PDFs (see Section 2.1.2.1 and Section 2.1.2.3) and avoidance and minimization measures listed in Table 2-1 (see also Table 4-1).

Construction activities may also result in effects to individual desert tortoises, including adults, juveniles, and eggs. Individuals may be struck by construction vehicles and equipment, may become trapped within open trenches, or may be crushed or buried in their burrows during excavation or trenching activities. In addition, noise and vibrations from heavy equipment may also disrupt desert tortoise behaviors or damage the hearing apparatus of tortoises. The likelihood of individual desert tortoises being injured or killed by construction equipment and activities is expected to be low. The entire solar facility will be fenced with security and desert tortoise exclusion fencing during site preparation, and clearance surveys will be conducted following fence installation to relocate tortoises found within the fenced area (see DT-6 in Table 2-1). Construction crews will also comply with additional avoidance and minimization measures (e.g., obeying site-specific speed limits and inspecting the area surrounding parked vehicles prior

to moving them) to further reduce the likelihood of individual desert tortoise being injured or killed during construction of the Project (Table 2-1 and Table 4-1). The potential effects to desert tortoise resulting from clearance surveys, relocation efforts, and other avoidance and minimization measures are discussed below in Section 4.1.4.

Lastly, desert tortoises within the Permit Boundary and vicinity may be affected by increased common raven presence associated with creation of food and water subsidies and installation of perimeter fencing and power poles during construction covered activities. The common raven is known to prey upon the desert tortoise, particularly hatchlings and juveniles (USFWS 2011). Raven populations in the western Mojave Desert have grown by approximately 1,500% over the past 25 years in response to human developments, which increase the availability of food and water sources for the species (USGS 2003). Fencing and other structures installed during construction of the Project will create nesting and perch sites that may attract ravens locally and result in increased predation of desert tortoise. Food and water subsidies generated during construction also have the potential to attract ravens to the Permit Boundary and vicinity. The Permittee will implement raven management PDFs to limit the potential attraction of ravens to the Permit Boundary (see Section 2.1.2.4).

4.1.2 Operations and Maintenance Effects

O&M activities associated with the Project will be minimal, and the majority of O&M activities conducted entirely within the solar facility (e.g., panel washing) are likely to have little to no effect on desert tortoise because the species will be excluded from the site by exclusion fencing (see Section 2.2.1). O&M activities that may affect desert tortoise or its habitat include inspection and repair of security and desert tortoise exclusion fencing; panel washing; repair and replacement of solar facility components; and fire control. Generally, the effects to desert tortoise resulting from O&M covered activities are similar, although the magnitude and duration of effects may vary. Therefore, the effects resulting from O&M covered activities are discussed generally in this subsection with references to specific activities, as necessary.

O&M covered activities may result in injury or mortality of desert tortoise individuals by vehicle collisions. Injury or mortality from vehicle collisions will be most likely along the existing access roads outside the solar facility that will be used for accessing the facility. Injury and mortality of desert tortoises from vehicle collisions are not anticipated to occur within the solar facility during O&M because individuals will be cleared prior to the O&M phase and exclusion fencing will prohibit tortoise access to the site. Injury or mortality of desert tortoise individuals may also occur during trenching associated with repairs to security and exclusion fencing. Noise and vibrations from heavy equipment used for potential replacement of Project components in the solar facility (e.g., solar panels) may also disrupt desert tortoise behaviors or damage the hearing apparatus of tortoises. Replacement of components requiring heavy equipment is

anticipated to be sporadic and infrequent. The potential for injury or mortality to occur during O&M covered activities is considered low with implementation of PDFs (see Section 2.1.2) and avoidance and minimization measures listed in Table 2-1 (see also Table 4-1).

Operation of the solar facility could also disrupt desert tortoise movement within the Permit Boundary and vicinity given that a new barrier (i.e., the fenced solar facility) would be created. However, given the extent of open space surrounding the solar facility, movement would not be completely impeded during operation of the solar facility. In addition, food and water subsidies generated during O&M covered activities have the potential to attract ravens to the Permit Boundary and vicinity, thereby potentially increasing desert tortoise predation. O&M activities may also introduce nonnative plant species to the Permit Boundary and vicinity, thereby potentially reducing overall habitat quality. Lastly, wildfires caused by O&M activities are rare (particularly in desert environments where fuel loads are low) but could occur and will damage adjacent habitat and could take individuals inhabiting adjacent areas. The potential for these effects to result in desert tortoise mortality or injury and habitat quality diminishment is considered low with implementation of PDFs (see Section 2.1.2) and avoidance and minimization measures listed in Table 2-1.

4.1.3 Decommissioning Effects

Decommissioning of the Project will entail removal of solar facility components and restoration of the Permit Boundary (see Section 2.2.4). Decommissioning activities will result in effects that are similar to those described above for construction (see Section 4.1.1). Decommissioning effects will mostly be temporary in nature (with the exception of potential injury or mortality of individuals) given that the Permit Boundary will be restored as part of decommissioning. Decommissioning of the Project is considered beneficial to desert tortoise and its habitat.

4.1.4 Effects of Other Covered Activities

Other covered activities include actions associated with implementation of PDFs, capture and relocation of DT, and this HCP's conservation strategy (see Section 2.2.5). Generally, these activities will be implemented for the benefit of desert tortoise and its habitat. However, the species or its habitat may be affected during implementation of certain measures designed to avoid, minimize, and mitigate effects to desert tortoise.

4.1.4.1 Project Design Features

PDFs that will be implemented as part of the Project include storm water pollution prevention, hazardous substance management, weed management, and raven management (see Section 2.1.2). Effects associated with PDFs will mostly be beneficial. For instance, storm water BMPs

will be implemented to minimize effects to desert tortoise habitat from erosion and runoff and are not expected to negatively affect the species.

Weed management activities may include chemical treatment with herbicides. Two herbicides may be used to treat invasive plant populations in suitable tortoise habitat: glyphosate and triclopyr. Based on the assessment of amphibians and reptiles in the Vegetation Treatment Programmatic Environmental Impact Statement (PEIS) (BLM 2007), these herbicides are considered to have no to a moderate potential for impacts to terrestrial vertebrates from dermal contact. A moderate risk would only occur via direct spray at the maximum application rate. All other exposure pathways for direct contact (i.e., all herbicides via contact with sprayed vegetation) have low to no risk potential. The Vegetation Treatment PEIS also analyzed the desert tortoise specifically and identified potential negative effects from ingestion of food sprayed with glyphosate or triclopyr at the typical application rate. All of these risk assessments were based on conservative assumptions and are not expected to underestimate the risk.

RE expects that herbicide use is highly unlikely to affect desert tortoises for several reasons. First, RE would use herbicides within the fenced area of the solar facility from which desert tortoises would have been removed prior to the use of the herbicides. Over the life of the project, a low potential exists that a desert tortoise would occasionally find its way through the fence. Because of the infrequent use of and targeted (spot-use) treatment by herbicides, these animals are highly unlikely to encounter a small patch of invasive plants shortly after the plants have been sprayed; additionally, desert tortoises may not attempt to feed on some weedy species.

To decrease the potential for negative impacts, herbicide application within desert tortoise habitat will primarily consist of glyphosate at the typical application rate and will consist of targeted treatment of individual weed plants. No broadcast treatment will occur. Additionally, herbicides will be applied by a certified applicator in accordance with applicable regulations minimizing risk of adverse impacts. Restoration ecologists and ABs, or certified applicators trained in restoration activities, will monitor herbicide treatments as appropriate to prevent unnecessary or excessive application of herbicides within the Permit Boundary (see Section 2.1.2.3).

Outside the fence, the AB will ensure that desert tortoises are not present within or near any spot treatments of weedy patches before spraying. RE will employ the same methods of application and use the same herbicides in these areas to ensure protection of desert tortoises.

Other chemicals and hazardous materials will be stored at the solar facility. Hazardous substance management (see Section 2.1.2.2) will minimize the potential for desert tortoises to be affected by spillage of chemicals and other toxic substances.

4.1.4.2 Capture and Relocation of Desert Tortoises

All desert tortoises are to be removed from the RE Cinco solar site. The project area will be cleared by ABs in accordance with the most recent USFWS guidelines following the installation of desert tortoise exclusion fencing. All tortoises found will be relocated to one of the three Recipient Sites (see Section 2.1.1) as described in the DT Relocation Plan. It is not known exactly how many desert tortoises will require relocation from the project site; however, only one small tortoise was detected during surveys within the solar field and it is anticipated that only a few will be relocated from the site.

In the Past, translocation was considered by biologists to be an ineffective tool in reducing the impacts of projects on desert tortoises and concern was raised regarding its numerous potential adverse effects (e.g., overcrowding, increased disease transmission, increased mortality, elevation of stress hormones, vulnerability to drought, etc.) (USFWS 2013). Subsequent studies over the last 10 years have shown that translocated, resident, and control animals do not have significant differences in mortality rates or levels of stress hormones. Translocated animals do tend to move more but have been observed to settle down after a period of time. Translocated tortoises also have a slightly lower reproductive output than that of residents or controls for the first year after translocation. To minimize potential adverse effects, the Permittee has developed a relocation program that would keep the desert tortoises captured on the project site within the same general area. The relocation program avoids translocation by relocating tortoises to one of three Recipient Sites on private lands owned by the project and adjacent to BLM lands. These areas are expected to be within their home range.

Capturing, handling, and relocating desert tortoises during clearance surveys could result in elevated levels of stress and possibly disease, death, or injury of individuals. Desert tortoises may die or become injured by capture and relocation if these methods are performed improperly, particularly during extreme temperatures or if they void their bladders. Voiding the contents of their bladders can result in the loss of important fluids that could be fatal (Averill-Murray 1999 in Boarman 2002). Averill-Murray 1999 (in Boarman 2002) provided some evidence that handling-induced voiding may adversely affect survivability, although the amount of fluid discharged is usually small. However, because the Permittee will use only experienced biologists (i.e., ABs) approved by USFWS and approved handling techniques, captured and relocated desert tortoises are unlikely to suffer substantially elevated stress levels, or be killed or injured.

Because the project area supports a small number of desert tortoises, we anticipate that any effects on tortoises relocated from the project area to Recipient Sites outside the fence or on tortoises located outside the fence on recipient sites (resident animals) are likely negligible. The potential exists that a small number of relocated or other resident desert tortoises may die or be

injured during the relocation because of the specific circumstances; however, the likelihood of this is extremely low.

4.1.4.3 Management of Mitigation Lands

Desert tortoises may also be taken during long-term management of mitigation lands. For instance, desert tortoises could be stuck by vehicles during overland travel associated with land management activities on mitigation lands. Also, biological surveys necessary for monitoring desert tortoise populations on mitigation lands may result in disturbance of individuals. Generally, land managers will wait for individuals encountered on mitigation lands to move from harm's way. Land managers will move tortoises from harm's way only if an imminent risk is present.

4.2 Requested Incidental Take

Implementation of the Project may result in incidental take of the desert tortoise, and the Permittee is requesting authorization of the potential incidental take associated with solar facility covered activities. Based on the estimate that up to seven desert tortoises with MCL greater than 180 mm may occur within the 500-acre portion of the Permit Boundary that will be developed as part of the Project and the presence of a few smaller individuals (see Section 3.6.2) and considering the potential effects associated with covered activities, the Permittee requests the following incidental take limits during the 40-year permit term for the desert tortoise:

Construction of the 500-acre project site:

- Movement off-site of up to seven desert tortoises with MCL greater than 180 mm with no more than mortality or injury of two desert tortoises with MCL greater than 180 mm.
- No limit on the movement off-site of desert tortoises with MCL less than 180 mm or eggs or their mortality or injury.

Operation, maintenance, and decommissioning of the 500-acre project site:

- Mortality or injury of five desert tortoises.
- No limit on the movement of desert tortoises from inside of the solar facility fence.

Management of the mitigation lands.

- No limit on the movement of desert tortoises out of harm's way.

- Mortality or injury of desert tortoises that may occur as a result of enhancement of mitigation land.
 - five desert tortoises if compensatory mitigation includes 500 acres
 - 10 desert tortoises if compensatory mitigation includes 1,700 acres

These take limits are expected to be sufficient considering the species occurrence within the Permit Boundary and vicinity and the likelihood of effects associated with covered activities. The Permittee will be required to monitor take of desert tortoise through effects monitoring (see Section 6.1.2) and coordinate with USFWS to amend the ITP if take limits are exceeded (see Section 6.2). Incidental take limits are not provided for desert tortoise eggs and desert tortoises less than 180 mm because their numbers within the Permit Boundary cannot be estimated with reasonable accuracy and they are less likely to be detected by ABs and DTMs relative to desert tortoises that are larger than 180 mm. However, the limit associated with capture and relocation of large desert tortoises will also serve as an appropriate indication of whether the number of eggs and small desert tortoises within the Permit Boundary is more than anticipated.

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5.0 CONSERVATION PROGRAM

5.1 Biological Goals

Section 10(a)(2)(A) of the ESA requires that a conservation plan specify the measures that a permittee will take to minimize and mitigate to the maximum extent practicable the impacts of the taking of any federally listed species as a result of activities addressed by the HCP. As part of the “Five Point” Policy adopted by USFWS in 2000, HCPs must establish biological goals and objectives (65 FR 35242). The purpose of the biological goals is to ensure that the operating conservation program in the HCP is consistent with the conservation and recovery goals established for the species, which are recovery and delisting (USFWS 1994, 2011). As stated in the revised desert tortoise recovery plan (USFWS 2011), the conservation and recovery goals for the species are:

- Maintain self-sustaining populations of desert tortoise within each recovery unit into the future.
- Maintain well-distributed populations of desert tortoise throughout each recovery unit.
- Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations.

The biological goals of this HCP are listed below and pertain to the Permit Boundary. As outlined in the Five Point Policy, the biological goals of an HCP are the broad, guiding principles of the plan. Biological goals have been established to support the recovery goals of the desert tortoise (as listed above).

- **Goal 1:** Implement project-specific measures to avoid and minimize adverse effects to desert tortoise and its habitat during construction and operation of the solar facility, and management of mitigation lands.
- **Goal 2:** Purchase mitigation lands at a USFWS-approved location to compensate for unavoidable adverse effects to desert tortoise habitat from construction and operation of the solar facility.

The overall concepts underlying the biological goals of this HCP are consistent with the recovery goals of the species identified by USFWS (2011). Specifically, the Permittee will contribute to the conservation of the desert tortoise by preserving and managing land for the benefit of the species.

5.2 Biological Objectives

Biological objectives of an HCP are measurable components that are necessary to achieve a biological goal. To accomplish the biological goals for desert tortoise described in Section 5.1, the Permittee will implement the biological objectives summarized in the following subsections.

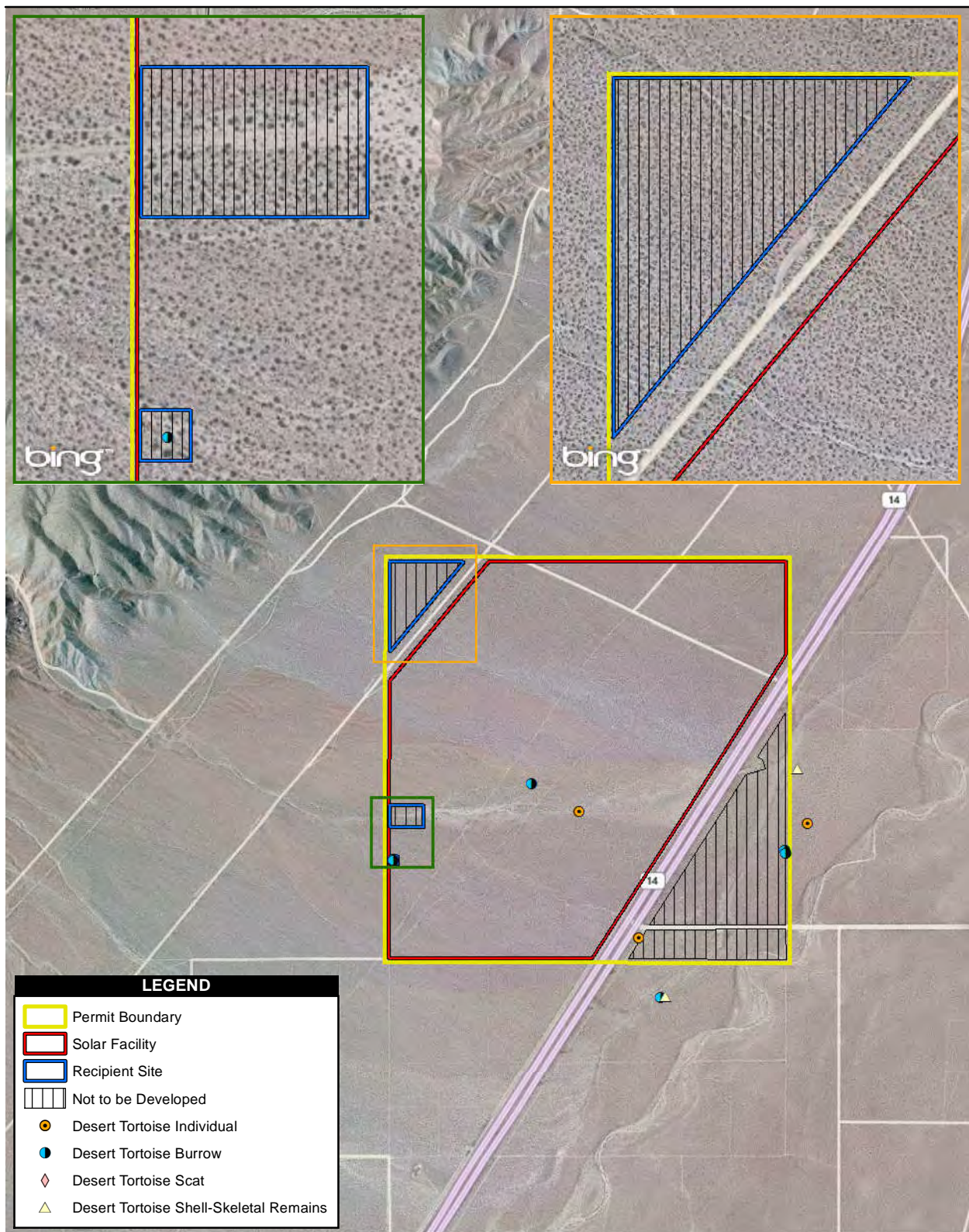
5.2.1 Biological Objectives to Satisfy Biological Goal 1

The Permittee has identified the following biological objectives to satisfy Biological Goal 1 for desert tortoise:

- **Objective 1:** Implement PDFs to construct, operate, and decommission the solar facility in a manner that minimizes potential adverse effect on biological resources, including the desert tortoise and its habitat.
- **Objective 2:** Implement all avoidance and minimization measures outlined in this HCP to further prevent and minimize the likelihood of desert tortoises being injured or killed during construction and operation of the solar facility.

Section 2.1.2 describes PDFs that will be implemented by the Permittee as part of the Project design. PDFs include actions to address storm water pollution, hazardous substances, invasive weeds, and ravens. Storm water pollution BMPs and weed management will reduce and minimize potential effects to desert tortoise habitat associated with construction and operation of the solar facility. Implementation of these PDFs will ensure that habitat suitability of undeveloped portions of the Permit Boundary and immediate vicinity will not substantially depreciate as a result of Project implementation. Hazardous substance and raven management will reduce the potential for desert tortoise individuals to be killed or injured within the Permit Boundary during construction and operation of the solar facility.

Table 2-1 identifies avoidance and minimization measures intended to reduce effects of covered activities on the desert tortoise. As noted in Table 2-1, clearance surveys and relocation of desert tortoises found in harm's way are important aspects of the Permittee's effort to avoid and minimize effects to the species. Protocols for conducting clearance surveys and relocating desert tortoises will be consistent with the Project's Desert Tortoise Relocation Plan (Appendix A) and USFWS guidelines (USFWS 2009). Desert tortoises found during clearance surveys for the solar facility will be relocated to suitable habitat within one of three potential recipient sites located outside of exclusion fencing but within the 594-acre parcel owned by the Permittee. Potential recipient sites are depicted in Figure 5-1. Exclusion fencing surrounding the solar facility will prevent relocated tortoises from returning to the solar facility, thereby significantly reducing the potential for tortoises to be injured or killed during construction and operation of the solar facility.



Source: RE Cinco 2013; AECOM 2013; Image courtesy of USGS Image courtesy of the Nevada State Mapping Advisory Committee © 2014 Microsoft Corporation © 2013 Nokia © AND

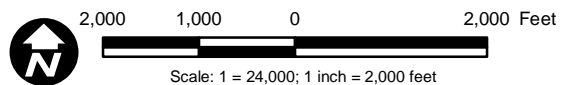


Figure 5-1
Proposed Desert Tortoise Recipient Sites

RE Cinco Project - Habitat Conservation Plan

Path: P:\2011\11280215.01_Recurrent_PV\06GIS\6.3_Layout\HCP\BarrenRidge\BR-HCP Tortoise Sites.mxd, 5/6/2014, jansenn

In addition, designation of an AB to monitor ground-disturbing covered activities is a critical aspect for avoiding and minimizing effects to desert tortoise. The AB will be responsible for ensuring compliance with the avoidance and minimization measures identified in Table 2-1 and communicating compliance issues to the Permittee and USFWS. The AB, through coordination with the Permittee and USFWS, will assist with resolving potential conflicts with the desert tortoise in the most environmentally sensitive manner.

5.2.2 Biological Objectives to Satisfy Biological Goal 2

The Permittee has identified the following biological objective to satisfy Biological Goal 2 for desert tortoise:

- **Objective 3:** Contribute to conservation of the desert tortoise through off-site land acquisition in the Western Mojave Recovery Unit.

The Permittee's contribution to conservation of the desert tortoise will be commensurate with the unavoidable effects associated with covered activities described in Chapter 2. Thus, the Permittee will acquire approximately 500 acres of suitable desert tortoise habitat. Acquisition of approximately 500 acres of off-site habitat will represent a 1:1 mitigation ratio for long-term effects to suitable desert tortoise habitat, and will include compensation for long-term habitat effects resulting from construction the solar facility. Actual acreage acquired may be more or less than 500 acres due to parcel boundaries of acquired land; final mitigation acreage will be approved by USFWS.ⁱⁱ The following general qualitative criteria will also be applied in selecting off-site mitigation lands for desert tortoise:

- Mitigation lands should expand upon larger block of lands that are either already protected or planned for protection, or feasibly could be protected by a public resource agency (e.g., BLM) or a private biological reserve organization (e.g., the Desert Tortoise Preserve Committee [DTPC]). Mitigation lands should not be completely isolated from other protected areas by significant barriers to desert tortoise movement (e.g., highways).
- Mitigation lands should have inherently moderate to good desert tortoise habitat that is likely to regenerate naturally when current disturbances (if there are any) are removed. Parcels should not be subject to such intensive recreational or other uses that recovery is rendered unlikely or lengthy. Invasive species that are likely to hinder habitat recovery

ⁱⁱ Additional acreage, up to 1,200 acres, may also be required for resource mitigation by other agencies (i.e., CDFW and/or Regional Water Quality Control Board) and would be covered by this permit.

(e.g., Saharan mustard [*Brassica tournefortii*]) should not be present in uncontrollable numbers, either on or immediately adjacent to the parcels under consideration.

- Mitigation lands should support habitat that is either currently occupied or will likely be occupied by the desert tortoise once the lands are protected from anthropogenic impacts and/or otherwise enhanced.

To achieve offsite mitigation obligations, the Permittee has preliminarily identified private lands in the Western Mojave Desert Recovery Unit which are located within the larger boundary of a Desert Wildlife Management Area and the Superior-Cronese Critical Habitat unit. While the precise location of the land is currently confidential during land negotiations, biological desktop review and field reconnaissance indicate that the mitigation land supports active desert tortoise populations and exhibits high quality desert tortoise habitat characteristics.

The Permittee will provide for the long-term land management for the off-site mitigation lands by providing initial funding for a non-wasting endowment to be used for that purpose. In addition, the Permittee may contribute funds to regional desert tortoise monitoring conducted by USFWS to assist with range-wide population monitoring in lieu of a detailed population monitoring effort on the off-site mitigation lands (see Section 6.1.3.2 below). The details of the funding will be presented in a mitigation proposal to the USFWS.

The Permittee intends to meet its compensatory mitigation obligations prior to the initiation of Project construction by, at minimum, upfront payment of a security or letter of credit for the estimated costs of mitigation (e.g., land acquisition and endowment costs) followed by completion of compensatory mitigation within 18 months following issuance of the permits and approvals. The Permittee will submit a Compensation Land Acquisition Report to USFWS for approval that describes the habitat characteristics of the parcel(s) and how the land to be acquired meets the requirements for desert tortoise. This report will also include any plans (e.g., a long-term management plan) and funding assurances.

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6.0 MONITORING, ADAPTIVE MANAGEMENT, AND REPORTING

6.1 Monitoring Program

Per the Five-Point Policy, the monitoring program of an HCP should provide information to (1) evaluate compliance; (2) determine if biological goals are being met; and (3) provide feedback information for an adaptive management strategy (see Section 6.2). The Five-Point Policy indicates the scope of monitoring should be commensurate with the scope and duration of the operating conservation program and Project effects (65 FR 35241–35257). Covered activities will be limited to within an approximate 594-acre Permit Boundary, of which up to approximately 500 acres will be disturbed by covered activities during the term of the permit.

Three monitoring types are described herein to address the objectives of monitoring provided by the Five-Point Policy:

- **Compliance monitoring** – tracks plan implementation to verify that the Permittee is carrying out the terms of the HCP and ITP.
- **Effects monitoring** – evaluates the actual effects of covered activities on the desert tortoise to verify that effects do not exceed estimates provided in Section 4.2.
- **Effectiveness monitoring** – evaluates whether the operating conservation program of the HCP is consistent with the assumptions and predictions made when the HCP was developed and approved (65 FR 35241–35257); if the biological goals are being met; and if the conservation strategy is being properly implemented.

Each monitoring type is designed to gather information to address specific questions related to tracking implementation of the HCP, including progress towards biological goals. The Permittee will be responsible for ensuring monitoring data are collected, compiled, and reported annually to USFWS. To streamline reporting requirements for the monitoring plan, a single annual report summarizing the three monitoring efforts outlined herein will be prepared and submitted to USFWS (see Section 6.3).

6.1.1 Compliance Monitoring

Compliance monitoring for covered activities will include the following:

- **Implementation of avoidance and minimization measures:** The Permittee will coordinate with USFWS to designate an AB to conduct construction monitoring activities and track implementation of avoidance and minimization measures for subsequent evaluation (Table 2-1, GM-7; DT-6). Such evaluations will include the overall number of covered activities for which avoidance and minimization measures were required and

implemented; and the specific reason avoidance and minimization measures are or are not being implemented.

- **Implementation of compensatory mitigation actions:** The Permittee will document compensatory mitigation actions (i.e., off-site land acquisition). The Permittee will ensure that compensation stays ahead of effects (i.e., mitigation will be secured prior to initiating a covered activity that may result in take).

6.1.2 Effects Monitoring

Effects monitoring will quantify, in acres, the effects to the desert tortoise and its habitats resulting from covered activities. Effects to desert tortoise habitat will be calculated using final engineering plans and under the assumption that the entire solar facility disturbance area supports suitable habitat. In addition, the AB will be responsible for documenting any incidental take (e.g., capture for relocation purposes, injury, or mortality) of the desert tortoise during implementation of covered activities.

6.1.3 Effectiveness Monitoring

In accordance with this HCP's conservation program (see Chapter 5), the Permittee will implement avoidance and minimization measures to reduce effects to desert tortoise and mitigate unavoidable effects to the species through off-site land acquisition. Effectiveness monitoring will be conducted by the Permittee (or authorized land managers) to ensure successful implementation of the HCP's conservation program. Effectiveness monitoring of the HCP's conservation program is described in the following subsections. The Permittee will be required to ensure funding is available to facilitate effectiveness monitoring.

6.1.3.1 Effectiveness Monitoring of Avoidance and Minimization Measures

The Permittee will monitor the effectiveness of avoidance and minimization measures using information collected during compliance monitoring (see Section 6.1.1). The Permittee, with assistance from ABs and DTMs, will review compliance monitoring results of avoidance and minimization measures to determine modifications, if any, necessary to avoid and minimize effects to desert tortoise and its habitats. The Permittee will coordinate with USFWS should effectiveness monitoring of avoidance and minimization measures determine that revisions to existing measures or development of additional measures are necessary.

6.1.3.2 Effectiveness Monitoring on Mitigation Lands

The Permittee will be required to ensure that assurances (including financial assurances) are in place to facilitate effectiveness monitoring of mitigation lands. Land managers and fund

managers will be responsible for implementing effectiveness monitoring and reporting to USFWS and the Permittee. Data collected by land managers and fund managers by effectiveness monitoring will be used to inform land management decisions and adaptive management strategies. The Permittee will coordinate with land managers and fund managers to include a summary of effectiveness monitoring on mitigation lands in each annual report submitted during the permit term of the HCP (see Section 6.3).

Effectiveness monitoring on mitigation lands will be limited to monitoring land management actions, as described in a long-term management plan. Given the anticipated size of mitigation parcels (approximately 500 acres total, plus up to an additional 1,200 acres of mitigation land required by other agencies), focused management and monitoring of the desert tortoise population on the mitigation parcels will provide limited information relative to the species' recovery. Also, even despite intense management and monitoring of mitigation lands, the desert tortoise population may decline on the parcel and surrounding region (or show opposite trends) due to forces beyond the Permittee's control. Therefore, as noted in Section 5.2.2, the Permittee may contribute funds to range-wide desert tortoise population monitoring conducted by USFWS in lieu of an intense onsite monitoring effort to study effectiveness of the management efforts on the desert tortoise population. In doing so, the Permittee will contribute to more meaningful population monitoring, results of which will provide data to inform range-wide management actions. USFWS range-wide population monitoring is currently occurring within 16 monitoring strata that generally coincide with desert tortoise critical habitat units. The Permittee would allow USFWS to conduct population monitoring on mitigation lands should USFWS determine that monitoring on these lands would provide meaningful data for the larger range-wide population monitoring effort.

6.2 Adaptive Management Strategy

This section describes the adaptive management strategy of this HCP, an integral part of an operating conservation program that addresses the uncertainty in the conservation of the desert tortoise. The purpose of this adaptive management strategy is to identify and address any uncertainties and integrate a monitoring program that detects the necessary information and incorporates a feedback loop that links implementation and monitoring to a decision-making process that results in appropriate changes in management. Monitoring and reporting described in Section 6.1 will provide the basis for determining when adaptive management strategies should be discussed and/or implemented. The adaptive management strategy of this HCP is designed to address uncertainties associated with the effectiveness of desert tortoise avoidance and minimization measures.

As described in Section 6.1.1 and Section 6.1.3.1, the implementation and effectiveness of avoidance and minimization will be monitored by the Permittee and designated AB and DTMs.

Implementation of avoidance and minimization measures will be reviewed annually to evaluate when and where measures are being implemented and their effectiveness at reducing effects to the desert tortoise. The Permittee will evaluate the circumstances under which avoidance and minimization measures are not being consistently implemented. As necessary, the Permittee will coordinate with the AB and USFWS to identify alternative strategies to address shortcomings of avoidance and minimization measures (e.g., conflicting permit requirements, physical location of covered activity, or safety concerns). Adjusting implementation of avoidance and minimization measures will ensure that measures continue to be implementable and effectively minimize effects to the desert tortoise and its habitat. Avoidance and minimization measures will continue to be implemented unless data clearly demonstrate that removing a measure will not increase take of desert tortoise or its habitat; removal of an avoidance and minimization measure may only occur after coordination with and approval from USFWS. Modifying existing or establishing new avoidance and minimization measures may require revisions to the HCP (see Chapter 7) or written concurrence from USFWS.

6.3 Reporting

An annual report documenting implementation of covered activities and results of monitoring efforts (i.e., compliance monitoring, effects monitoring, and effectiveness monitoring) will be prepared and submitted to USFWS throughout the term of the permit. To allow time for data synthesis, copies of the annual monitoring report will be submitted to USFWS by February 15 following the year (January through December) to which the report applies. Copies of the original field notes, raw data, and photographs will be included in the report. At a minimum, the annual report will include the following information:

- Summary of the status of biological goals and objectives of the HCP
- Description of covered activities and associated avoidance and minimization measures implemented during the reporting period
- Assessment of effectiveness of avoidance and minimization implementation, including effectiveness at reducing effects to desert tortoise and its habitat, and a discussion and explanation of any avoidance and minimization measures that may need to be modified
- Summary of desert tortoise observations (including a map showing locations of observations and completed forms submitted to the CNDDDB)
- Year-to-date and cumulative summary (i.e., from start of permit term) of effects (in acres) to desert tortoise habitat and any documented incidental take of the species (e.g., captured [and moved from harm's way], injured, killed)

- Year-to-date and cumulative summary of mitigation actions and summary of effectiveness monitoring of desert tortoise mitigation
- Description of circumstances that made adaptive management necessary; documentation of discussions with USFWS; and description of how adaptive management was implemented
- Description of any changed or unforeseen circumstances that occurred and how they were addressed
- Description of any minor or major amendments.

In addition to the annual report, if any problems regarding the desert tortoise or its habitat are encountered or incidents of injury or mortality to species occur during construction or operation, the Permittee will provide a written report of these problems/incidents to USFWS within 3 days of their occurrence. The report will describe the current level of success of the implementation of avoidance, minimization, and mitigation measures relevant to the specific problem. Further, the report will suggest procedures for devising or implementing adaptive management strategies to curtail damage caused by the problem and improve the long-term viability of the avoidance, minimization, and mitigation measures relevant to the specific problem. A summary of subsequent progress will be included in the subsequent annual report submitted to USFWS at the end of the calendar year.

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7.0 PLAN IMPLEMENTATION/FUNDING

This chapter describes implementation of the HCP and associated funding requirements. As noted in Section 1.2, the Permittee will obtain a Section 2081 incidental take permit from CDFW to cover potential impacts to species listed under CESA (i.e., desert tortoise and Mohave ground squirrel) resulting from Project implementation. Implementation of this HCP will be coordinated with requirements of the Section 2081 permit to the extent necessary and feasible.

7.1 Changed Circumstances

Section 10 permit regulations (50 CFR 17.32[b][1] through 17.32[b][8]; 50 CFR 17.22[b][1] through 17.22[b][8]) require that an HCP specify the procedures to be used for dealing with changed circumstances that might arise during the implementation of the HCP. The Habitat Conservation Plan Assurances Rule (“No Surprises Rule”) (63 FR 8859–8873; 69 FR 71723–71731; 50 CFR 17.3) defines changed circumstances and describes the obligations of permittees and USFWS to address such changed circumstances. Changed circumstances are defined as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated and planned for by plan developers and USFWS (50 CFR 17.3).

This section identifies potential changed circumstances that may arise during the 40-year permit term of the HCP. Such changed circumstances include:

- Listing of a new species
- Vandalism
- Wildfire
- Invasion of nonnative species
- Increased predation on desert tortoises

Each changed circumstance recognized by the HCP is discussed in the following subsections, and possible remedial actions are provided. As necessary, the Permittee will implement measures specified in this HCP to respond to the changed circumstances. Additional conservation and mitigation measures (i.e., measures not identified in this HCP) to respond to changed circumstances will only be implemented with consent of the Permittee, assuming that the HCP is being properly implemented (“properly implemented” means the commitments and the provisions of the HCP and permit have been or are being fully implemented by the permittee). The monitoring program outlined in Section 6.1 will be designed to detect changes in circumstances that may occur during the permit term.

7.1.1 Listing of a New Species

The Permittee will be notified by USFWS if a species that is not covered by the HCP, but that may be affected by covered activities, were to become a candidate for listing or be proposed for listing or listed under the ESA during the 40-year permit term. The Permittee, with assistance from USFWS, will evaluate the potential effects of covered activities on the newly listed species and any designated critical habitat. If there is a potential for adverse effects to occur during implementation of covered activities, the Permittee will implement measures identified by USFWS to avoid the likelihood of take of or jeopardy to the newly listed non-covered species, or the destruction or adverse modification of the newly designated critical habitat, until the HCP and ITP are amended to include such species, or until USFWS notifies the Permittee that such measures are no longer needed to avoid the likelihood of take of or jeopardy to the newly listed non-covered species, or the destruction or adverse modification of the newly designated critical habitat. The Permittee may enter into negotiations with USFWS regarding necessary modifications to the HCP, if any, to revise or amend the ITP to cover the newly listed species. If the Permittee decides to pursue coverage of the species under this HCP, USFWS will provide technical assistance in identifying appropriate modifications to the HCP that will be necessary to revise or modify the ITP to cover the newly listed species.

7.1.2 Vandalism

Vandalism, such as destruction of exclusion fencing, preserve fences (if any), or illegal dumping, could negatively affect the desert tortoise or its habitat in the Permit Boundary. If vandalism that may affect the species is known or suspected to have occurred, the Permittee and/or USFWS-approved land manager will give notice to USFWS within 7 days. Effects of vandalism on the desert tortoise in the Permit Boundary will be minimized through implementation of avoidance and minimization measures. For example, damage to exclusion fencing surrounding the solar facility will be temporarily repaired immediately and permanently repaired within 3 days of observing the damage (see DT-3 in Table 2-1). The effects of vandalism on mitigation lands will be managed according to general long-term management principles, as implemented by the land manager. The land manager will be responsible for notifying USFWS should long-term management strategies fail to address effects on desert tortoise and its habitat resulting from vandalism. Costs of reasonably anticipated periodic maintenance associated with the mitigation lands will be included in the overall endowment fund.

7.1.3 Wildfire

Historically, desert ecosystems have experienced wildfire infrequently due to low perennial vegetative cover, low primary productivity, and limited fuel load (Humphrey 1974, Brooks and Matchett 2006). However, invasion of non-native annual grasses (e.g., red brome [*Bromus*

madritensis], cheatgrass [*B. tectorum*], and Mediterranean grass [*Schismus barbatus*]) in the Mojave Desert in recent decades has altered the fire regime by creating areas with continuous fuel bed for fire to spread through naturally large gaps between perennial vegetation (Brown and Minnich 1986, Brooks 1999). Because the habitats in the Mojave Desert are not adapted to fire and fire has not played a role in their evolution, it is reasonable to predict that a wildfire could result in long-term damage to desert tortoise habitat on mitigation lands and surrounding the Permit Boundary.

Covered activities have the potential to trigger wildfires within the Permit Boundary and vicinity. The Permittee will implement measures to reduce the likelihood of wildfire occurring as a result of covered activities within the solar facility (see Section 2.1.2.3 and Table 2-1). Additionally, the land manager will manage and monitor mitigation lands to minimize the introduction and proliferation of nonnative plant species, thus minimizing potential to fuel fires and optimizing the potential for a natural recovery of the desert scrub community. If fire occurs in the Permit Boundary, the Permittee or land manager will notify the USFWS within 24 hours of the wildfire being observed. The Permittee and/or land manager will then coordinate with USFWS to determine cause (if necessary) and appropriate course of action to remediate the effects of wildfire on desert tortoise. If a wildfire is determined to be caused by the actions of the Permittee or land manager, remediation of potential desert tortoise effects within the Permit Boundary will be the responsibility of the Permittee or land manager. In some instances, larger fires may ignite outside the Permit Boundary and burn through the Permit Boundary despite efforts by the Permittee and land manager to minimize wildfire potential. In these cases, the Permittee and/or land manager will not be held responsible for remedial actions in excess of current management efforts.

7.1.4 Invasion of Nonnative Species

The Permittee will conduct weed management in and around the solar facility to minimize the spread of invasive weeds following construction of the Project (see Section 2.1.2.3). If a new nonnative plant or animal infestation occurs within the mitigation lands, the land manager will develop a plan and implement approved measures to control and eradicate (if possible) the infestation. The plan will be presented to USFWS and CDFW for approval. The plan will describe any additional funding required to implement the plan. This changed circumstance does not include nonnative plant and animal species that currently exist on or in the vicinity of the mitigation lands, since these invasive species constitute circumstances typical of the area. Costs for an invasive species control plan have been included in the overall endowment fund.

7.1.5 Increased Predation on Desert Tortoise

As identified Section 2.1.2.4, the Permittee will implement measures incorporated into the project design to reduce the attraction of ravens to the solar facility. On mitigation lands, the land

manager will also implement strategies to limit the introduction of new food or water subsidies, perch sites, roost sites, or nest sites. The Permittee will also contribute to the Raven Program (see Section 2.1.2.4 above) to offset potential impacts to regional raven populations and the associated potential for increased raven predation on desert tortoises. As part of the regional raven management efforts, the land manager will provide access to mitigation lands for raven control purposes, and will coordinate with USFWS and CDFW to implement potential strategies to control raven use of mitigation lands.

7.2 Unforeseen Circumstances

Unforeseen circumstances are defined by the No Surprises Rule as changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by plan developers and USFWS at the time of the plan's negotiation and development, and that result in a substantial and adverse change in status of covered species (50 CFR 17.3). For the purposes of this HCP, changes in circumstances not described above in Section 7.1 that will substantially alter the status of desert tortoise are considered unforeseen circumstances. The No Surprises Rule provides assurances to entities participating in habitat conservation planning under the ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

Upon issuance of the permit, regulatory assurances pursuant to the "No Surprises" regulations at 50 C.F.R Sections 17.22(b)(5) and (6) and 17.32(b)(5) and (6) will be provided. Pursuant to the "No Surprises" regulations, as long as this HCP and the permit are being properly implemented, USFWS shall not require additional conservation and mitigation measures that involve the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources otherwise available for development or use under the original terms of this HCP without the consent of the Permittee.

In case of an unforeseen event, the Permittee will notify the USFWS within 24 hours of identifying the unforeseen event. In determining whether such an event constitutes an unforeseen circumstance, the Permittee and USFWS will determine if the event will substantially change the level of take anticipated by this HCP. Assuming the HCP is being properly implemented, additional conservation and mitigation measures deemed necessary to respond to the unforeseen circumstances must be as close as possible to the terms of the original HCP, and must be limited to modifications within lands that are already set aside in the HCP's operating conservation program. Acquisition of additional mitigation land to address unforeseen circumstances will only be implemented with the consent of the Permittee.

7.3 Amendments

7.3.1 Minor Amendments

Minor amendments are changes that do not affect the scope of the HCP's impact and conservation strategy, change amount of take, add new species, or change significantly the boundaries of the HCP. Examples of minor amendments include changes to covered activities within the exclusion fencing surrounding the solar facility (e.g., change in solar technology), mapping errors, or changes in the amount of habitat affected based on as-built acreages; in such cases, the Permittee will extend the existing protective measures to the changed activity to achieve the same level of protection of desert tortoises that is described in this HCP. The minor amendment process will be accomplished through an exchange of letters (including electronic communication) between the Permittee and the appropriate USFWS Field Office.

7.3.2 Major Amendments

The Permittee would pursue a major amendment to the ITP if the scope or the conservation strategy of the HCP is changed, the HCP needs to be revised to cover new species, the amount of take is likely to increase, or the boundaries of the Project are altered significantly. Major amendments will likely require amendments to the USFWS's decision documents, including the NEPA document, the biological opinion, and findings and recommendations document. Major amendments may also require additional public review and comment.

7.4 Suspension/Revocation

USFWS may suspend or revoke its permit should the Permittee fail to implement the HCP in accordance with the terms and conditions of the ITP, or should suspension or revocation be otherwise required by law. USFWS may suspend or revoke the ITP for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (see Title 5, Part 558 of the U.S. Code [5 USC 558]; 50 CFR 13.27 through 13.29; 15 CFR 904). The exception is that USFWS may revoke the ITP based on a determination that continuing covered activities will be likely to jeopardize the continued existence of the desert tortoise only if USFWS has not been successful in remedying the situation in a timely fashion through other means as provided in the No Surprises Rule (50 CFR 17.22[b][5] and 50 CFR 17.32[b][5]).

Such suspension or revocation may apply to the entire ITP, or only to specified areas within the Permit Boundary or certain covered activities. In the event of suspension or revocation, the Permittee's obligations under the HCP will continue until USFWS determines that all take of desert tortoise that occurred under the ITP has been fully mitigated in accordance with the HCP.

7.5 Permit Renewal

In the event that the Project continues to operate beyond the 40-year permit term, the ITP may need to be renewed. If renewal is sought, an ITP amendment would likely be necessary to address potential changes in biological circumstances and other pertinent factors affecting the desert tortoise. To renew the ITP, the Permittee will submit the following information to the USFWS:

- A request to renew the ITP with reference to the original permit number;
- Certification that all statements and information provided in this HCP and ITP application, together with any approved HCP amendments, are still true and correct, and inclusion of a list of changes;
- A description of any take that has occurred under the existing ITP; and
- A description of which activities under the original ITP the renewal is intended to cover.

If the USFWS concurs with the information provided in the request, it will renew the permit consistent with permit renewal procedures required by Federal regulation (50 CFR §13.22). If the Permittee files a renewal request and the request is on file with the issuing USFWS office at least 30 days prior to the ITP's expiration, the permit shall remain valid while the renewal is being processed. However, the Permittee may not take desert tortoise beyond the quantity authorized by the original ITP. If the Permittee fails to file a renewal request within 30 days prior to ITP expiration, the permit shall become invalid upon expiration. The Permittee and the compensation lands steward must have complied with all annual reporting requirements to qualify for an ITP renewal.

7.6 Permit Transfer

Due to various market forces inherent in the energy generation field, the Permittee may seek to sell or transfer ownership of the property during the 40-year permit term. If such an event were to occur, the ITP will need to be transferred to the new owner.

In the event of a sale or transfer of ownership of the Project during the permit term, the following will be submitted to the USFWS by the new owner(s): written documentation providing assurances pursuant to 50 CFR §13.25 (b)(2) that the new owner will provide sufficient funding for the HCP and will implement the relevant terms and conditions of the ITP, including any outstanding minimization and mitigation. The new owner(s) will commit to all requirements regarding the take authorization and mitigation obligations of this HCP unless otherwise specified in writing and agreed to in advance by the USFWS.

7.7 Funding

The Permittee has sufficient financial assets to implement the terms of this HCP, and will provide financial assurances to guarantee that an adequate level of funding is available to implement all aspects of the HCP. Costs associated with implementation of the HCP are as follows:

- Administration and training
- Acquisition of mitigation lands to be preserved and managed in perpetuity
- Implementation of avoidance and minimization measures, including PDFs
- Implementation of maintenance, monitoring, and adaptive management on mitigation lands
- Implementation of remedial actions for changed circumstances

A restriction that qualifies as a conservation easement under Cal. Civ. Code § 815 et seq. and is approved by the USFWS and CDFW (if applicable) will be placed on mitigation lands to ensure the continued use of the lands as a mitigation site. This conservation easement cannot be altered without the written permission of the USFWS and CDFW (if applicable). Acquisition of mitigation lands will be subject to the financial conditions listed below.

- a. Enhancement Fund (as necessary): Fund the initial protection and enhancement of the mitigation lands by providing enhancement dollars to an approved third-party entity.
- b. Endowment Fund: Prior to Project construction, provide to an approved third-party entity a permanent capital endowment in the amount determined through a Property Analysis Record (PAR) or PAR-like analysis. This analysis will model the anticipated costs associated with the acquisition of land, as well as management expenses (e.g., fencing, monitoring), while accounting for escalation in costs associated with inflation. Interest from this amount shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the mitigation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action designed to protect or improve the habitat values of the mitigation lands. The endowment principal shall not be drawn upon unless such withdrawal is deemed necessary by the USFWS, CDFW, or approved third-party entity to ensure the continued viability of the desert tortoise on mitigation lands.
- c. Security Deposit: The Permittee may proceed with ground-disturbing Project activities before fully performing its duties and obligations as set forth above only if financial

assurance is provided by the Permittee in the form of an irrevocable letter of credit, a pledged savings account, or another form of security (“Security”) approved by the USFWS and CDFW (if applicable) providing administrative proof of funding necessary to cover land acquisition and easement costs, fencing/cleanup costs, and, as necessary, initial protection and enhancement of the mitigation lands. If a Security is provided to allow the commencement of Project construction prior to completion of mitigation actions, the Permittee or an approved third-party entity must complete the required actions no later than 18 months after the start of Project construction. If all actions for mitigation lands described above are not completed within 18 months of the start of Project construction, the Permittee will consult with the USFWS and CDFW and possibly develop alternate mitigation land proposals subject to the above requirements.

- d. Reimbursement Fund: Provide reimbursement to the approved third-party entity, USFWS, and CDFW for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other state agency reviews; and overhead related to completing the acquisition of compensation lands.

As stated above, the Permittee will complete acquisition of mitigation lands prior to initiating construction of the Project, unless financial assurance in the form a Security approved by the USFWS and CDFW is provided. The amount of the Security is calculated in Table 7-1.

The Permittee will promptly notify USFWS of any material change in their financial ability to fulfill obligations and commitments of this HCP. In addition to providing any such notice, the Permittee will provide USFWS with a copy of its annual report for each year of the ITP, or with other reasonably available financial information that will provide adequate evidence of the Permittee’s ability to fulfill its obligations.

Table 7-1
Security Calculation for Mitigation Land

Item	Unit Cost (per acre)	Acres of Mitigation^{a,b}	Total Costs
Acquisition of Mitigation Lands for Desert Tortoise	\$3,400	500	\$1,700,000
Enhancement of Mitigation Lands for Desert Tortoise	\$250	500	\$125,000
Endowment to Support Long-Term Maintenance, monitoring, and adaptive management of Mitigation Lands for Desert Tortoise	\$1,350	500	\$675,000
GRAND TOTAL			\$2,500,000

^a Acreage assumes a 1:1 mitigation ratio (i.e., 1 acre of mitigation for 1 acre of effect) for effects to suitable desert tortoise habitat. Potential additional mitigation acreage and associated funding required for the Project’s state-issued Section 2081 incidental take permit not included.

^b Acreages approximate estimates of total mitigation. Mitigation may be more or less based on actual parcel boundaries of acquired lands.

8.0 ALTERNATIVES

HCPs are required to describe the alternative actions to take that were considered and the reasons why those alternatives were not selected. Two alternatives are considered herein: 1) a no action alternative and 2) an all private land alternative. The all private land alternative assumes that the solar facility and gen-tie line would be constructed on private land and take of desert tortoise may occur; thus, an ITP covering both the solar facility and gen-tie line would be sought by the Permittee. These alternatives and their potential effects on the desert tortoise are discussed further in the following subsections.

In addition to the required No Project alternative, three development alternatives for the solar facility were considered but rejected during CEQA review of the Project based on purpose and need, constraints imposed by existing land use and ownership, policy restrictions, or implementation constraints. These alternatives included:

- Substitution of the solar project with a wind or other alternative energy development. This alternative was not carried forward because the project site is not located in an area where consistent winds are present or other alternative energy sources would be anticipated as viable. Military overflight restrictions in the area also precluded the suitability of the site for wind energy generation. It was also determined that development of the site for wind energy purposes would not lessen any identified environmental effects, and for some issue areas the effects would be greater.
- Development of the site at a different location. This alternative was not carried forward because it was not considered to be “potentially feasible,” as there are no other suitable sites within the control of the project proponent. Given the size of the proposed project, the project objectives, and the need to arrange a suitable assemblage of parcels, it was determined that it would be impractical and infeasible to propose the project on an alternative site and still proceed within a reasonably similar timeframe. Further, it was determined that development of the project at a different location would be likely to have the same environmental effects after mitigation as the proposed project, so there was no particular advantage in choosing a different location.
- Distributed Commercial and Industrial Rooftop Only Development. This alternative would have forgone the development of a utility-scale solar site, and would instead have distributed power generation within existing developed areas atop large commercial and industrial buildings. This alternative was not adopted because the need to arrange a suitable assemblage of participating commercial and industrial properties and the challenges of operating and managing the facilities at a similar scale as the proposed project would be impractical and infeasible.

Other alternatives were considered during development of the HCP. These included those listed below.

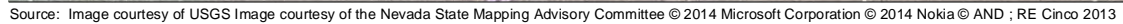
8.1 No Action Alternative

Under the no action alternative, USFWS would not approve the Permittee's HCP and would not issue an ITP. As a result, the proposed solar facility would not be constructed. The private lands upon which the solar facility would be located would remain in their current state and would be available for other uses in accordance with the Kern County General Plan and other applicable regulations. These lands are classified in the General Plan as "Resource Management" lands, and are zoned as "A FP" (Agriculture-Floodplain Combining). Uses authorized for this designation and zoning include, but are not limited to, crop production, animal production, livestock grazing, utility and communication facilities, resource extraction, and energy development (Kern County Code of Ordinances Chapter 19.12). A number of additional uses could be permitted with issuance of a conditional use permit, including solar power generation, single-family residential development, and a number of commercial and institutional uses. Failure to implement the Project would not preclude these and other uses from being proposed and possibly implemented in the future.

8.2 All Private Land Alternative

Under the all private land alternative, the Permittee would construct and operate both the solar facility and gen-tie line entirely on private land. The solar site would be constructed on the same 500 acres within the 594-acre parcel described in Chapter 2 and analyzed in Chapter 4. The gen-tie line would be constructed within a ROW extending eastward from the southeast corner of the solar facility, across SR-14, and north to the existing LADWP Barren Ridge Switching Station (Figure 8-1). This gen-tie line ROW would be approximately 3.6 miles in length, approximately 1.6 miles longer than the route proposed on BLM land. Under this alternative, the Permittee would seek an ITP for activities associated with construction, O&M, and decommissioning of both the solar facility and gen-tie line. Activities and avoidance and minimization measures associated with the gen-tie line that would require ITP coverage under this alternative are described in Appendix B.

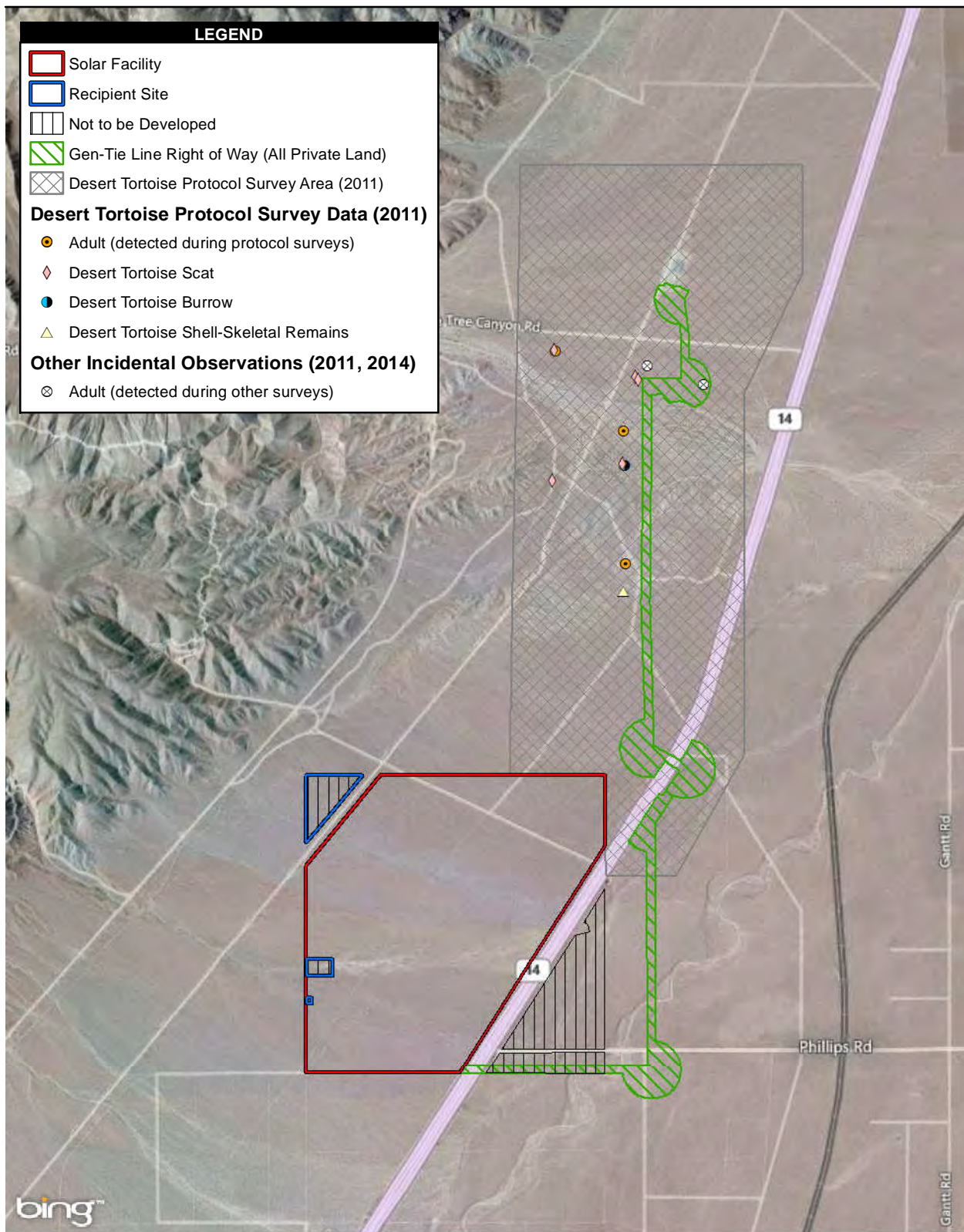
Desert tortoise habitat quality within the private land gen-tie ROW is similar to the habitat quality within the solar facility (see Section 3.6.2). Two desert tortoise were detected east of the solar facility and SR-14 during 2010 field surveys conducted for the solar facility, near the vicinity of the private land gen-tie line ROW (Figure 3-5). Four additional desert tortoise were detected north of the solar facility and west of the northern portion of the private land gen-tie line



ROW during desert tortoise protocol surveys and other biological surveys conducted in 2011 and 2014 (Figure 8-2). Desert tortoise sign (i.e., burrows, scat, shell-skeletal remains) was also observed west of the northern portion of this gen-tie line ROW (Figure 8-2).

Impacts to desert tortoise resulting from this alternative would be similar to those described in Chapter 4 but would be of greater scale and magnitude. Approximately 500 acres of suitable desert tortoise habitat would be affected in the long-term with construction of the solar facility. Construction of the gen-tie line on private land would result in temporary effects to approximately 126 acres of suitable desert tortoise habitat. Areas temporarily affected during construction include work areas around structures and conductor pull sites; these areas would be allowed to return to natural conditions following construction. An additional 7 acres would be subject to long-term effects with installation of gen-tie line structures and a service road. Therefore, a total of up to 633 acres of suitable desert tortoise habitat would be affected during construction of the all private land alternative (i.e., 500 acres within the solar facility plus 133 acres [126 acres of temporary effects plus 7 acres of long-term effects] within the private gen-tie line ROW). Unlike the solar facility, desert tortoise would not be excluded from suitable habitat within the gen-tie line ROW by permanent exclusion fencing and could continue to use the gen-tie line ROW for certain life cycle needs (e.g., movements and foraging). Desert tortoise occurring within the gen-tie line ROW would be vulnerable to injury or mortality during gen-tie line construction, O&M, and decommissioning activities.

Desert tortoise found in harm's way during construction, O&M, and decommissioning of the gen-tie line would be moved out of harm's way to an area of suitable habitat in accordance with the RE Cinco Desert Tortoise Relocation Plan (Appendix A). Because exclusion fencing would not be installed within the gen-tie line ROW, tortoises moved from harm's way would not be prohibited from moving back into areas of suitable habitat previously occupied following completion of activities. The ITP issued under this alternative would cover mortality or injury of desert tortoise potentially resulting from construction, O&M, and decommissioning of both the solar facility and gen-tie line. Therefore, the total amount of take authorized by the ITP would be greater than described in Section 4.2 given that the ITP would cover more geographic area and additional construction and operation activities. The ITP would cover handling of tortoises found in harm's way, but would not cover relocation of individuals discovered along the gen-tie line ROW. Relocation of individuals found within the solar facility would remain covered by the ITP. The ITP issued for this alternative would also increase the amount of mitigation required to meet Objective 3 of this HCP's conservation strategy (see Section 5.2.2). Up to 633 acres of suitable desert tortoise habitat would require compensatory mitigation (see Section 5.2.2 for mitigation options), and funding obligations associated with the HCP described in Section 7.7 would increase accordingly to cover the additional mitigation requirements associated with this alternative. Table 8-1 summarizes funding assumptions for the all private land alternative.



Source: RE Cinco 2013, Image courtesy of USGS Image courtesy of the Nevada State Mapping Advisory Committee © 2014 Microsoft Corporation © 2013 Nokia © AND

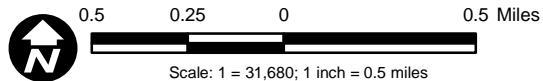


Figure 8-2
Desert Tortoise Observations (2011, 2014)

RE Cinco Project - Habitat Conservation Plan

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Table 8-1
Security Calculation for Mitigation Land for the All Private Land Alternative

Item	Unit Cost (per acre)	Acres of Mitigation^{a, b}	Total Costs
Acquisition of Mitigation Lands for Desert Tortoise	\$3,400	633	\$2,152,200
Enhancement of Mitigation Lands for Desert Tortoise	\$250	633	\$158,250
Endowment to Support Long-Term Maintenance, monitoring, and adaptive management of Mitigation Lands for Desert Tortoise	\$1,350	633	\$854,550
GRAND TOTAL			\$3,165,000

^a Acreage assumes a 1:1 mitigation ratio (i.e., 1 acre of mitigation for 1 acre of effect) for effects to suitable desert tortoise habitat. Potential additional mitigation acreage and associated funding required for the Project's state-issued Section 2081 incidental take permit not included.

^b Acreages approximate estimates of total mitigation. Mitigation may be more or less based on actual parcel boundaries of acquired lands.

This alternative was not adopted because the longer gen-tie line would increase impacts to native habitat and on the desert tortoise; result in potential impacts to waters of the State within a Federal Emergency Management Agency (FEMA) 100-year flood zone; increase costs associated with the Project; and potentially result in increased land ownership constraints from multiple land owners.

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10.0 ACRONYMS AND ABBREVIATIONS

AB	Authorized Biologist
AC	Alternating current
Permittee	RE Barren Ridge 1 LLC
BMP	Best management practice
BLM	Bureau of Land Management
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CO ₂	Carbon dioxide
DC	Direct current
DT	Desert tortoise
DTM	Desert Tortoise Monitor
DTPC	Desert Tortoise Preserve Committee
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
°F	Degrees Fahrenheit
FCR	Field Contact Representative
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FR	<i>Federal Register</i>
Gen-tie line	Generation intertie line
GHG	Greenhouse gas

GIS	Geographic information system
GM	General Measure
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
kV	Kilovolt
LADWP	Los Angeles Department of Water and Power
MCL	Midline carapace length
MW	Megawatt
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
O&M	Operations and maintenance
PAR	Property Analysis Record
PDF	Project Design Feature
PEIS	Programmatic Environmental Impact Statement
PPA	Power Purchase Agreement
PV	Photovoltaic
RE	Recurrent Energy
REAT	Renewable Energy Action Team
ROD	Record of Decision
ROW	Right-of-way
Solar facility	The proposed 60-megawatt solar photovoltaic power-generating facility
SR-14	State Route 14
SWPPP	Storm Water Pollution Prevention Plan
USC	Unites States Code
USFWS	United States Fish and Wildlife Service
USGS	Unites States Geological Survey
WEAP	Worker Environmental Awareness Plan

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APPENDIX A

DESERT TORTOISE RELOCATION PLAN FOR THE RE CINCO PROJECT

**RE CINCO PROJECT
DESERT TORTOISE RELOCATION PLAN
KERN COUNTY, CALIFORNIA**

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July 2014

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LIST OF ATTACHMENTS

<u>Attachment</u>
1 Health Assessment Procedures for the Mojave Desert Tortoise (<i>Gopherus agassizii</i>): A Handbook Pertinent to Translocation (U.S. Fish and Wildlife Service, Desert Tortoise Recovery Office)

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1.0 INTRODUCTION

The RE Cinco Project (Project) is proposed by RE Barren Ridge Solar 1, LLC, a subsidiary of Recurrent Energy. The Project includes development and operation of a 60-megawatt (MW) solar photovoltaic (PV) power-generating facility (solar facility) on privately owned land near the towns of California City and Mojave within Kern County, California (Figure 1). A generation intertie line (gen-tie line) extending north from the northwest corner of the solar facility site and connecting to the existing Los Angeles Department of Water and Power (LADWP) Barren Ridge Switching Station will also be constructed to deliver power to the electrical grid. The gen-tie line will be constructed primarily on federally owned land administered by the Bureau of Land Management (BLM) and will require BLM's issuance of a right-of-way (ROW) grant.

As part of the issuance of a ROW grant, the BLM is conducting a NEPA process including preparation of an EA and a Biological Assessment (BA) for the separate Gen-tie Line project component for which the USFWS will issue an Incidental Take Statement and Biological Opinion (BO) to permit take of desert tortoise on the public lands. As part of the BA, a description of desert tortoise and proposed measures will be included consistent with the measures in the Habitat Conservation Plan (HCP) (See below), as appropriate. No relocation would occur along the transmission line as desert tortoise would only be moved out of harm's way. The Section 7 consultation between BLM and USFWS will exempt take of desert tortoise resulting from the gen-tie line portion of the Project.

This Desert Tortoise Relocation Plan (Plan) is being coordinated with the U.S. Fish and Wildlife Service (USFWS) under Section 10 of the federal Endangered Species Act (ESA), and with the California Department of Fish and Wildlife (CDFW) under Section 2081 of the California Endangered Species Act (CESA) (and reiterated under Title 14 California Code of Regulations, Section 783). Desert tortoise is both a state and federally listed threatened species. The Plan was prepared in conjunction with obtaining the Project's federal and state Incidental Take Permits (ITPs) and the preparation of the associated HCP for the solar facility. Where any discrepancy between the ITPs and this Plan exist, the ITPs should be followed. In order to minimize effects to desert tortoise, relocation of individual tortoises may be necessary; therefore, a relocation plan is required. The gen-tie line across lands administered by the BLM has been addressed under a federal Section 7 consultation process, wherein the USFWS and BLM agreed that desert tortoises could be moved out of harm's way along the gen-tie line route, without the necessity of a desert tortoise relocation plan.



Source: RE Cinco 2013; Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

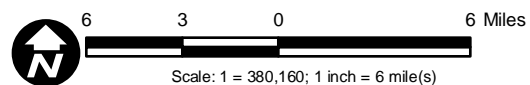


Figure 1
Regional Map

RE Cinco Project Desert Tortoise Relocation Plan

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This Plan is specifically required as a mitigation measure (DT-1) incorporated into the Project's HCP, as follows:

HCP Measure DT-1: Measure Description. *Prior to construction activities, the Applicant will prepare a site-specific Desert Tortoise Relocation Plan. The plan will provide details on desert tortoise clearance surveys and relocation, and will be consistent with current U.S. Fish and Wildlife Service (USFWS) guidelines (USFWS 2010).*

Timing. *Pre-construction.*

For desert tortoises, males generally have been shown to have larger home ranges than females in studies of sufficient duration and sample size (O'Connor et al. 1994; TRW 1999a), approximately 111.6 acres (range: 10.4–487.8 acres) (45.2 ha; range: 4.2–197.5 ha) for adult males and 43.5 acres (range: 4.7–143.3 acres) (17.6 ha; range: 1.9–58.0 ha) for adult females. These areas result in home range diameters of 2482 ft (752 m) for males and 1554 ft (470 m) for females. Studies of shorter duration or with a smaller sample size found smaller home ranges (e.g., Burge 1977, Barrett 1990, O'Connor et al. 1994, Duda et al., 1999). Home ranges for both genders (Duda et al, 1999) and for males, only, in one study (TRW 1999), decreased significantly in drought years. Translocation is not proposed for the RE Cinco Project.

For the purposes of this Plan, the following terms are used to define two categories of moving desert tortoises, as addressed by this Plan:

- Moving Out Of Harm's Way – Moving a tortoise to safety from the animal's initial location to a point immediately adjacent to the authorized project activity (e.g., moving a tortoise just outside of a linear corridor, or to the outside of a tortoise-proof fence).
- Relocation – Moving a tortoise to safety from the animal's initial location to one of the three proposed relocation sites (see **Section 5.2 Recipient Sites**).

The structure of this Plan is first to describe general procedures applicable to all tortoise handling and relocations: data collected on all tortoises; tortoise transportation; authorized handlers; and reporting. The Plan then addresses desert tortoise pre-construction surveys, clearance and relocation during various Project phases, from site perimeter fencing through construction, restoration activities following construction, operations, and Project decommissioning. The reader is advised that this Plan is for desert tortoise clearance and relocation only. Other actions associated with tortoise protection measures (construction monitoring, fence construction and monitoring, etc.) are included in other relevant documents, such as the HCP and CDFW 2081

ITP. All avoidance, protection, and minimization measures that are identified in other Project documents for other biological and for cultural resources will be implemented in concert with this Plan.

2.0 BACKGROUND

2.1 Project Description and Setting

The Project would be located in the western Mojave Desert, west of SR 14 and east of the southern Sierra Nevada. The Project site is bounded on all sides by undeveloped natural habitat. Elevation at the Project site ranges from 2,420 to 2,670 feet.

The Project would be located in the western Mojave Desert, characterized by low precipitation and atmospheric humidity, high summer temperatures, and relatively cool winter temperatures. Daytime summer temperature ranges from an average of 97.7 degrees Fahrenheit (°F) to 104.3°F. Daytime winter temperature ranges from an average of 28.2°F to an average daytime high of 33.9°F. The average annual rainfall is approximately 6 inches. The rainy season is from November through March, with the majority of rainfall occurring in January.

Topography in the Project area is generally moderately sloping (2% to 15% slopes) and undulating, with water flowing generally northwest to southeast across the Solar Facility site and Gen-tie Line sites.

The Project would be located within the Koehn Hydrologic Area of the Fremont Hydrologic Unit (Figure 2). Water in this area drains north to Koehn Dry Lake, a closed drainage basin that retains water and allows no outflow to other external bodies of water. The Project would be located within an alluvial fan protruding from the base of Barren Ridge to the east, along State Route (SR) 14. SR-14 is elevated above the surrounding topography, impounding runoff from the alluvial fan and directing it through an existing reinforced concrete box culvert at the east end of the Project site. This runoff then joins the primary watercourse east of the highway and is tributary to Pine Tree Canyon Creek, approximately 2 miles north of the LADWP Barren Ridge Switching Station.

The solar facility, which this Plan addresses, would be located on privately owned lands. The gen-tie line, which does not require implementation of this Plan, occurs on public lands. Figure 3 shows the federal and local land use designations in the Project area. The gen-tie line will be discussed throughout this Plan for overall context. However, as noted above, the gen-tie line has

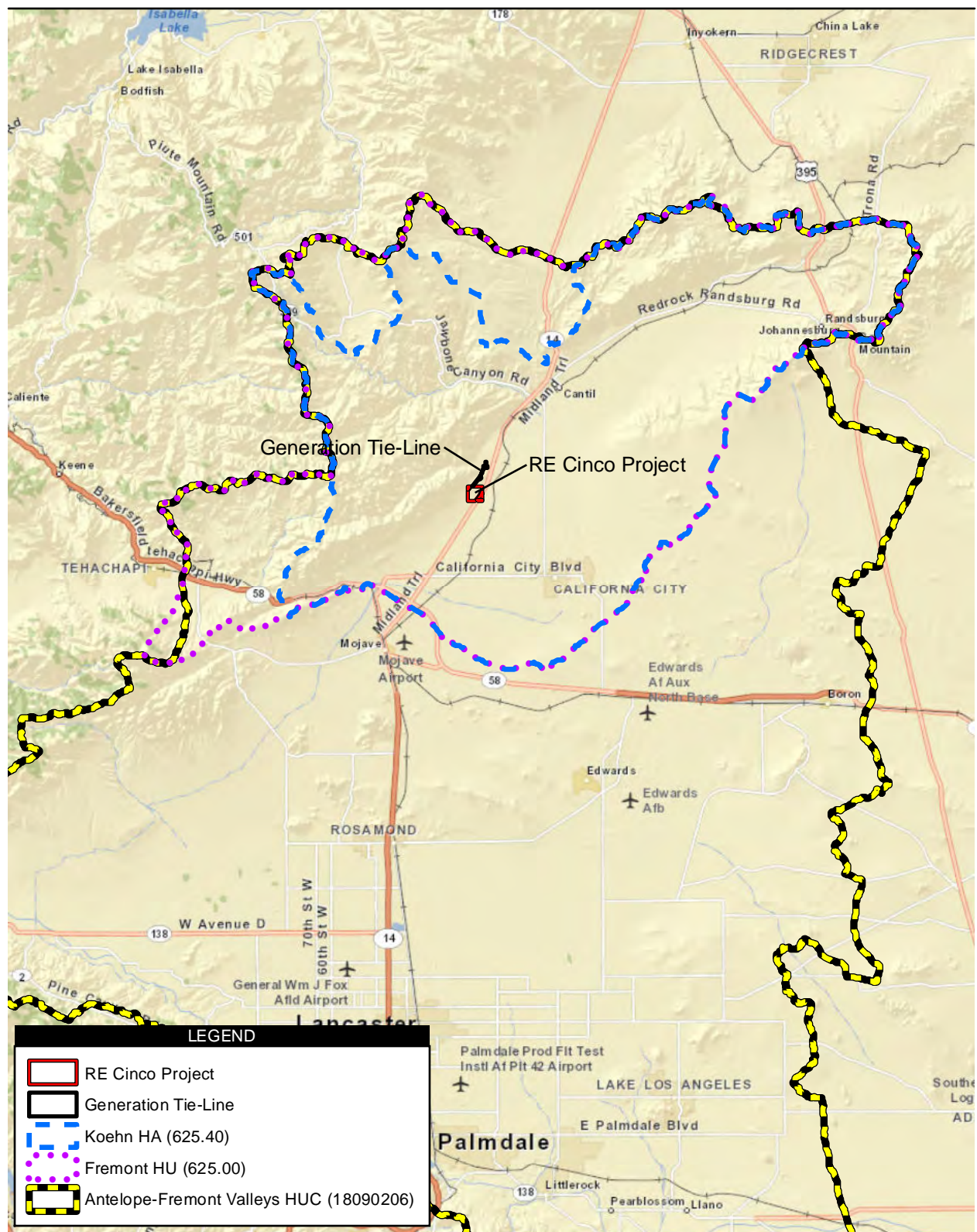


Figure 2
Watersheds

RE Cinco Project Desert Tortoise Relocation Plan

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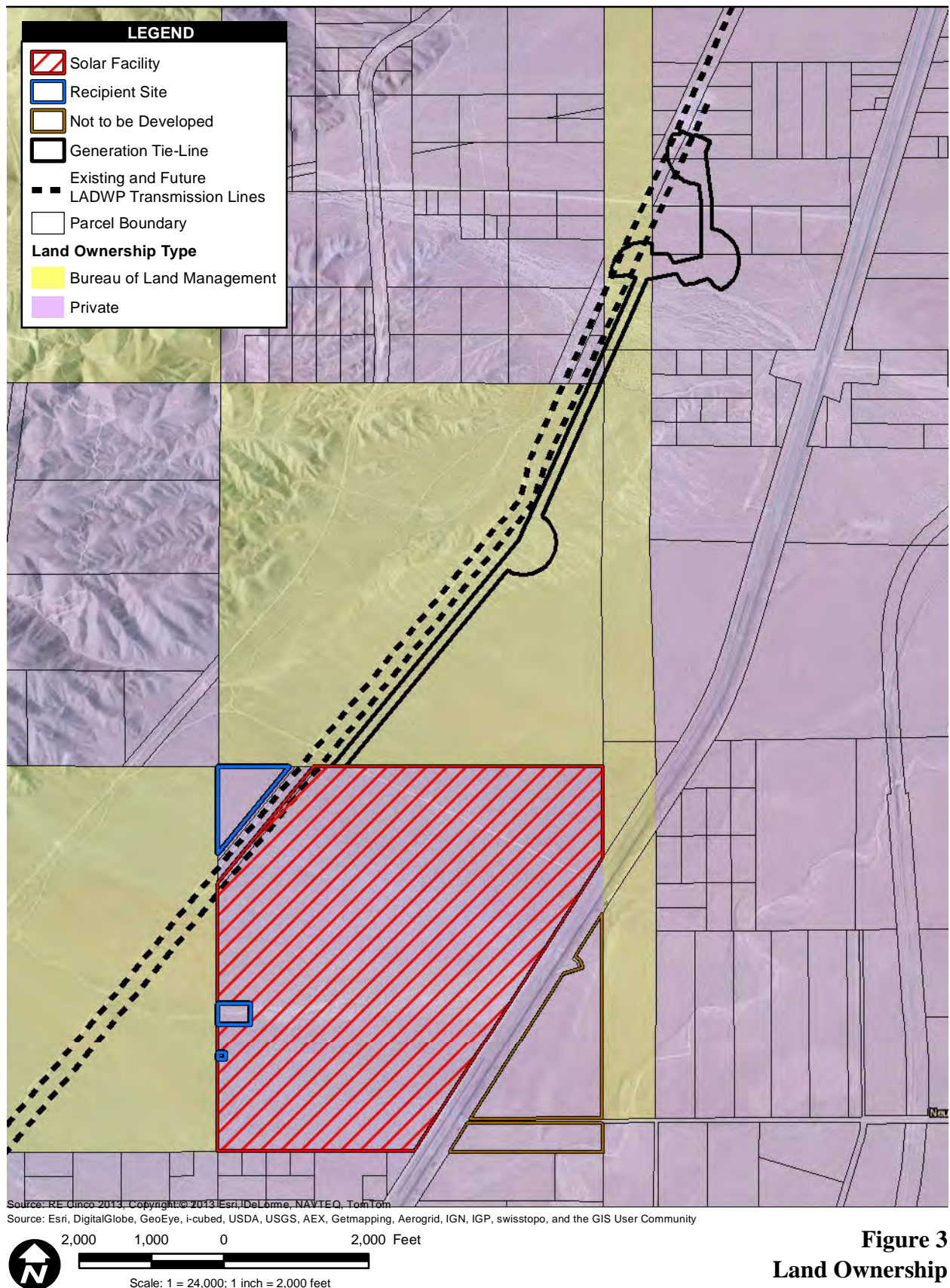


Figure 3
Land Ownership

been analyzed under a federal Section 7 consultation between the USFWS and BLM, and no desert tortoise relocation plan is required for implementation of that federal action.

The private lands underlying the planned Solar Facility and the private lands that would be crossed by the proposed Gen-tie Line are classified in the Kern County General Plan as “Resource Management” land. The private land underlying the Solar Facility is zoned as “A FP” (Exclusive Agriculture Floodplain Combining), and the gen-tie alternatives cross private lands zoned “A” (Exclusive Agriculture), “AGH” (Limited Agriculture Geologic Hazard Combining), “PLRS” (Platted Lands Residential Suburban Combining). These classifications and zoning allow for the construction of solar developments and transmission facilities with the issuance of a Conditional Use Permit from the County. The County prepared an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) and approved a Conditional Use Permit for the Solar Facility and the preferred gen-tie line across private lands in 2011.

The USFWS is preparing an Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) for issuance of an Incidental Take Permit (ITP) under the Endangered Species Act (ESA). The CDFW will rely on the County’s EIR for issuance of an ITP under the California Endangered Species Act (CESA).

The Project would be comprised of two major components: the Solar Facility and the Gen-tie Line. The Solar Facility would consist of the solar PV panels (or modules), a battery storage station, inverters, intermediate voltage transformers, access roads, electrical collector wiring, an electrical control building, an O&M building, telecommunications facilities, a substation, permanent desert tortoise exclusion fencing, and security fencing and lighting. The Gen-tie Line would consist of poles, towers, overhead conductors, communications and grounding wires, radio and/or microwave transmitters, and a service road.

The Solar Facility site would be secured by a 6-foot-high chain link perimeter fence topped with 1 foot of barbed wire. Wildlife exclusion fencing would be incorporated into the perimeter fence design or would be located outside of the perimeter fence. The Solar Facility would include two access points with locked gates that would be fully accessible by emergency responders. The Gen-tie Line would be constructed within a 150-foot-wide right-of-way (ROW) augmented with 450-foot fan-shaped areas at corners, and would be accessed by an existing service road just outside of the ROW and new spur roads that would be constructed to each transmission support structure site.

The Gen-tie Line would convey the power generated at the Solar Facility to the electrical grid. The proposed gen-tie would be a 2-mile-long 230 kilovolt (kV) line between the Solar Facility and the existing Los Angeles Department of Water and Power's (LADWP) Barren Ridge Switching Station.

2.2 Project Phasing

2.2.1 Solar Facility

Solar Facility construction would proceed in three phases:

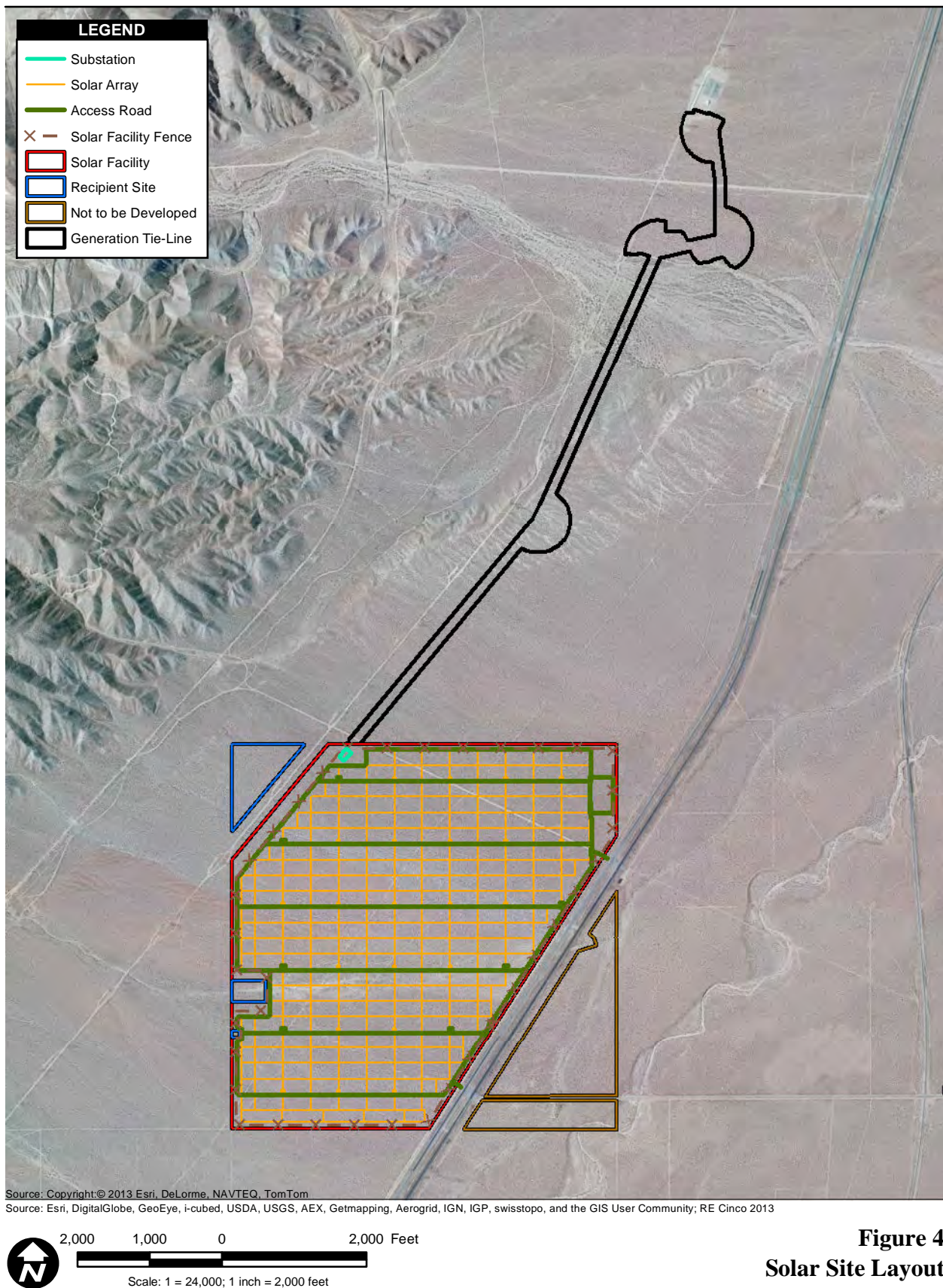
- Phase 1: Site Preparation
- Phase 2: PV System Installation
- Phase 3: Inverters, Substation, and System Interconnection

Phase 1: Site Preparation. Site preparation would include preparation of the laydown areas, construction of the internal access roads, preparation of the PV field, preparation of the substation, installation of the array posts, installation of the conduits, construction of the relay house, construction of the O&M building, and installation of the perimeter fence.

A construction staging area would be established for construction personnel and the secure storage of equipment, and would be in the same location as the future substation (Figure 4). A permanent operations and maintenance (O&M) building would also be constructed during the site preparation phase. The location of the O&M building is shown on the site plan (Figure 4).

Equipment storage may include locking containers, additional temporary fencing, and other methods of protection. Temporary air-conditioned construction offices would be trucked in along with a first aid station for site personnel. Potable water and portable toilets would be delivered to the site for use during construction and operations.

Construction access road locations would correspond to the future internal access roads. The roads would be 20 feet wide and would consist of compacted native material surfaced with gravel or compacted soil. A stabilized entrance/exit would be provided to clean vehicle wheels prior to exiting the construction area.



RE Cinco Project Desert Tortoise Relocation Plan

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Although minimal site grading would occur on the Solar Facility site, there is potential that the entire site would be disturbed to at least a minimal degree. Minimal cut and/or fill are anticipated to be required and, if required, would be expected to be balanced on-site.

The Applicant will implement erosion control, drainage plans, and storm water management plans/mitigation pursuant to Kern County-approved grading plans and Kern County and state guidelines. The goal of these plans is to ensure that Project activities do not affect off-site lands. Storm water would be directed off-site into the existing storm-water channel that runs parallel to SR-14. Dust control oversight will be conducted in accordance with Kern County guidelines.

Permanent fencing would be constructed around the site during site preparation and would remain in place for security reasons during operation of the Solar Facility. All perimeter fencing would include desert tortoise exclusion fencing constructed in accordance with USFWS specifications.

Equipment used for site preparation would include bulldozers; water trucks; graders; flatbed trucks; skid steers; front-end loaders; compactors; trenchers; backhoes; and miscellaneous light-, medium-, and heavy-duty vehicles.

Phase 2: PV System Installation. After the solar facility has been properly cleared and graded, underground and aboveground work would commence. Underground cabling would be trenched and flagged/staked as aboveground teams survey and plan array boundaries and string locations.

System installation would begin with teams installing the mounting and support structures, which would incorporate steel/concrete piers driven up to approximately 10 feet into the ground. The exact design would be finalized pending specific soil conditions, and the methods may include pile-driving and/or vibration-driven screw piles and aboveground ballast foundations. After installation of the support structures, PV panel installation and electrical work would commence.

The combiner boxes and inverters would be constructed on concrete pads or footings. The footings, foundations, and pads for the substation would be constructed on concrete obtained from an off-site source.

Electrical conduits and electrical wiring would be installed and buried in designated areas throughout the site. Trenching to a depth of approximately 4 feet is expected to be required to bury underground conduits and wiring.

Equipment used during construction and installation of the solar site would include water trucks, flatbed trucks, pile drivers, forklifts, welders, and miscellaneous light-, medium-, and heavy-duty trucks.

Phase 3: Inverters, Substation, and System Interconnection. The final stage of construction would include installation of inverters and substation equipment, installation of the electrical conduit and collection system, battery system installation, system testing and commissioning, site cleanup, and demobilization of the construction effort. Kern County will inspect the site and approve building permits. All debris would be removed from the site and disposed of properly. Where appropriate, revegetation would be implemented prior to final completion.

Equipment used during this phase would include pile drivers, trenchers, backhoes, cranes, aerial lifts, concrete trucks, and miscellaneous light-, medium-, and heavy-duty trucks.

2.2.2 Gen-tie Line

Gen-tie construction will commence during the pre-construction phase for the solar facility. Gen-tie construction will begin prior to installation of tortoise exclusion fencing at the solar facility site.

Construction of the gen-tie line would begin with construction of the spur roads off of the existing LADWP maintenance road. The roads would be constructed with bulldozers and graders, and then compacted to the extent required to ensure stability. Associated spoils would spread evenly over the roadway, thus minimizing barriers to desert tortoise movement and interference with surface hydrology. The spur roads would be 12 feet in width with a maximum disturbance width of 20 feet during construction.

Installation of the gen-tie line would require temporary 60-foot radial work areas around each pole or structure site. These work areas would be cleared of vegetation. Each pole or footing would be set within a concrete foundation. If geotechnical conditions allow, structures could also be buried directly and holes backfilled with gravel. Holes for structure supports would be excavated using a truck-mounted drill rig. The use of explosives is not proposed. Resultant spoils would be spread around the work area. Structures would be delivered on a flat-bed trailer and assembled on-site.

Lateral and radial pull sites would be required for installing conductors. The lateral pull sites would measure approximately 100 feet by 450 feet and the radial pull sites would have a radius

of up to 450 feet. Conductors would be strung between poles and towers with heavy duty trucks, except for the span between the towers on either side of Pine Tree Canyon Wash, which would be strung with a helicopter or drug across the ground by workers to avoid permanent disturbance through the wash.

After conductors have been pulled into place, the conductor sag between the structures would be adjusted to a precalculated level and the line would then be set with a minimum required ground clearance. The conductors would be attached to the end of each insulator, the sheaves removed, and the vibration dampers and other accessories installed. This work would be performed by ground crews, and would not require access to Pine Tree Canyon Wash.

Construction of the gen-tie line is anticipated to require up to 4 crews, consisting of linemen, electricians, laborers and operators, totaling 20 to 30 personnel. The installation would take place on weekdays and would not require overtime work or weekend work. Minimal clearing and grading would be required for installation of the gen-tie line, with permanent disturbance limited to the area immediately surrounding each structure and the roads. The duration of helicopter use would be several hours on a single construction day.

Construction equipment that will be used during construction of the gen-tie line and associated access road includes dozers; graders; a front-end loader; a compactor; skid steers; a drill rig; a crane; a lift truck; a water truck; a flatbed truck; a road grader; a concrete truck; a back hoe; a forklift; a helicopter; and miscellaneous light-, medium-, and heavy-duty vehicles. Water would be used for dust suppression during gen-tie line construction. Water would be obtained from an off-site water purveyor and trucked in from approximately 10 miles away. No groundwater would be used for construction or operation of the gen-tie line.

2.2.3 Operation and Maintenance Activities

This section describes O&M activities that may affect desert tortoise or its habitat. O&M activities associated with the Project will be minimal, and O&M activities conducted entirely within the solar facility (e.g., panel washing) will have limited to no effect on desert tortoise because the species will be excluded from the facility by fencing (see Section 2.2.1). O&M activities associated with the solar facility that may affect desert tortoise or its habitat include inspection and repair of security and desert tortoise exclusion fencing, repair or replacement of solar facility components, and gen-tie line inspections, maintenance, repairs, and fire control. These covered O&M activities are described further in the following subsections.

2.2.3.1 Inspection and Repair of Security and Desert Tortoise Exclusion Fencing

Inspection and repair of security and desert tortoise exclusion fencing will occur as needed during the life of the Project. Generally, fencing repairs will be less intensive than construction of the fencing; however, in some instances, repairs may require re-clearing and re-trenching areas previously affected during construction of the solar facility. Inspections will occur mostly on foot; fence repair may require equipment access depending on the location and extent of repair needed. Repairs to security and desert tortoise exclusion fencing will be performed under the direction of an AB.

2.2.3.2 Repair and Replacement of Solar Facility Components

Repair and replacement of solar facility components will occur as needed during the life of the Project. Repair and replacement of solar facility components may require use of heavy equipment similar to that used during construction of the solar facility (see Section 2.2.2). Repair and replacement of solar facility components would not require supervision by an AB given that these activities will be conducted within the desert tortoise exclusion fencing. However, repair and replacement of solar facility components may result in indirect effects to desert tortoise and, thus, are covered by this HCP.

2.2.3.3 Fire Control

A 10,000-gallon water tank will be located on the solar facility site for firefighting purposes. Water for the tank will be hauled in from off-site. Meetings will be conducted with local fire agencies to agree on appropriate risk-reduction measures and protocols in the event of a fire. The possibility of fires will be minimized by exercising care when operating utility vehicles within the ROW and access roads, and by not parking vehicles on or in proximity to dry vegetation where hot catalytic converters can ignite a fire. Construction vehicles will carry water and shovels or fire extinguishers. Fire protective mats or shields will be used during grinding or welding to prevent/minimize the potential for fire. Vegetation clearing around the facility structures (e.g., towers, poles, substations) for fire protection may be required and will be coordinated and cleared with local agencies and in accordance with applicable environmental regulations.

2.2.4 Decommissioning Activities

Generally, decommissioning of the Project will be beneficial to desert tortoise and its habitat; however, the species or its habitat may be affected while implementing decommissioning activities. The following subsections describe decommissioning of both the solar facility and gen-tie line.

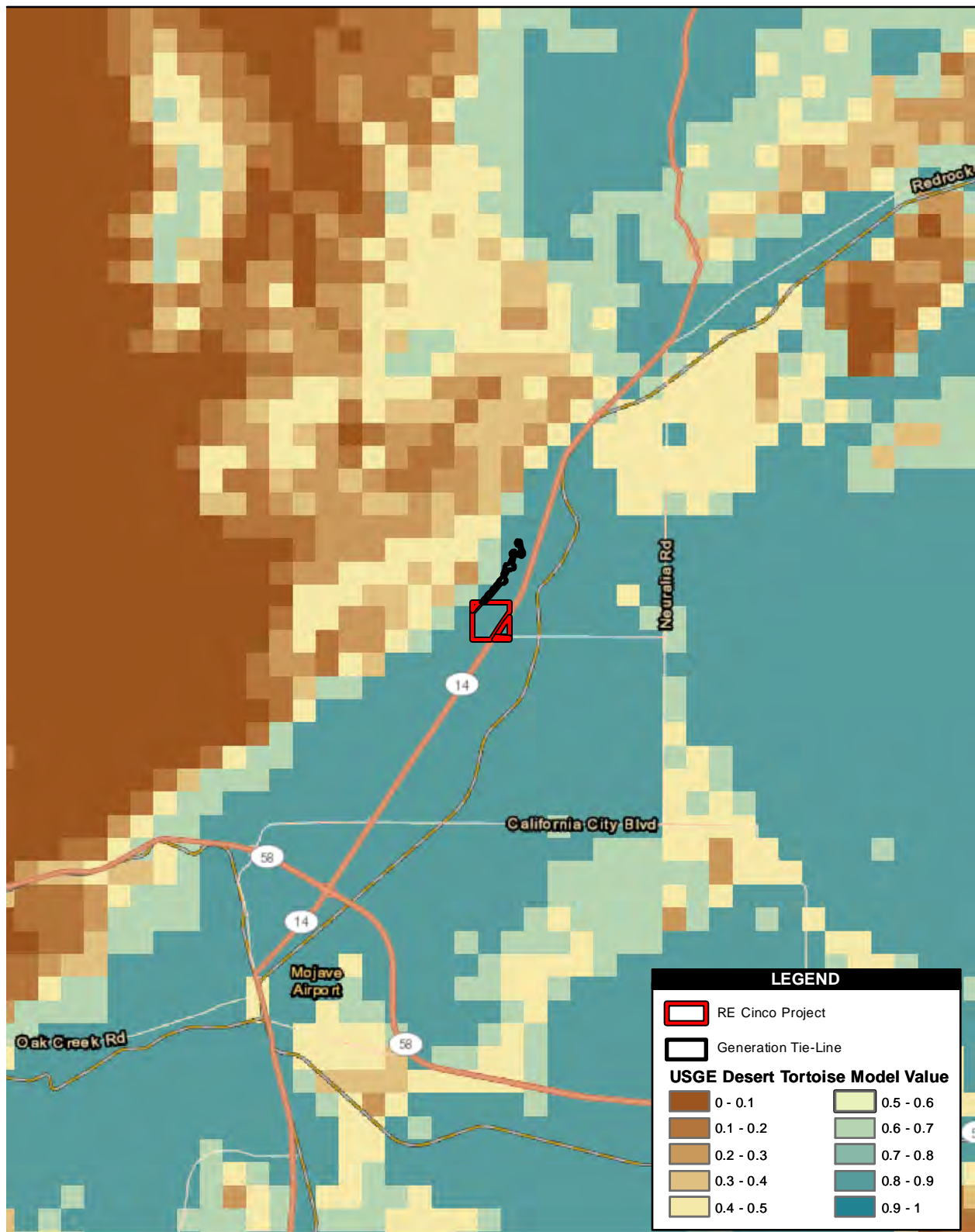
2.2.4.1 Solar Site Restoration

The solar facility is will be subject to decommissioning requirements of the Kern County Planning and Community Development Department. In accordance with Kern County requirements, the Applicant will work with Kern County to put an agreement in place that will ensure the decommissioning of the solar facility after its productive lifetime. Any foundations will be removed and hauled off-site to an approved landfill. A collection and recycling program will be implemented to promote recycling of Project components and to minimize disposal of Project components in landfills. All decommissioning and restoration activities will adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, state, and Kern County regulations.

2.3 History of Desert Tortoise Surveys

The RE Cinco site is located approximately 5 miles west of the Desert Tortoise Natural Area and 3 miles south of the Jawbone/Butterbrecht Area of Critical Environmental Concern. The general area is identified as potential habitat for desert tortoise, which is listed as threatened under both the federal Endangered Species Act and the California Endangered Species Act (CESA).

The entire HCP Permit Boundary, located at the far western edge of the desert tortoise's range, provides moderately suitable habitat for desert tortoise. Figure 5 shows the U.S. Geological Survey (USGS) Species Habitat Model results for the HCP Permit Boundary and vicinity. Model scores range from 0 to 1, with a model score of 1 corresponding to areas with the highest habitat potential for desert tortoise. The USGS model score for the HCP Permit Boundary ranges from 0.8 to 0.9. It should be noted, however, the analysis used by the model does not account for anthropogenic changes that may have altered habitat with relatively high potential into areas with lower potential.



Source: RE Cinco 2010-2013, Copyright© 2014 Esri, DeLorme, HERE, TomTom; USGS-NHP 2003

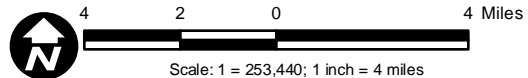
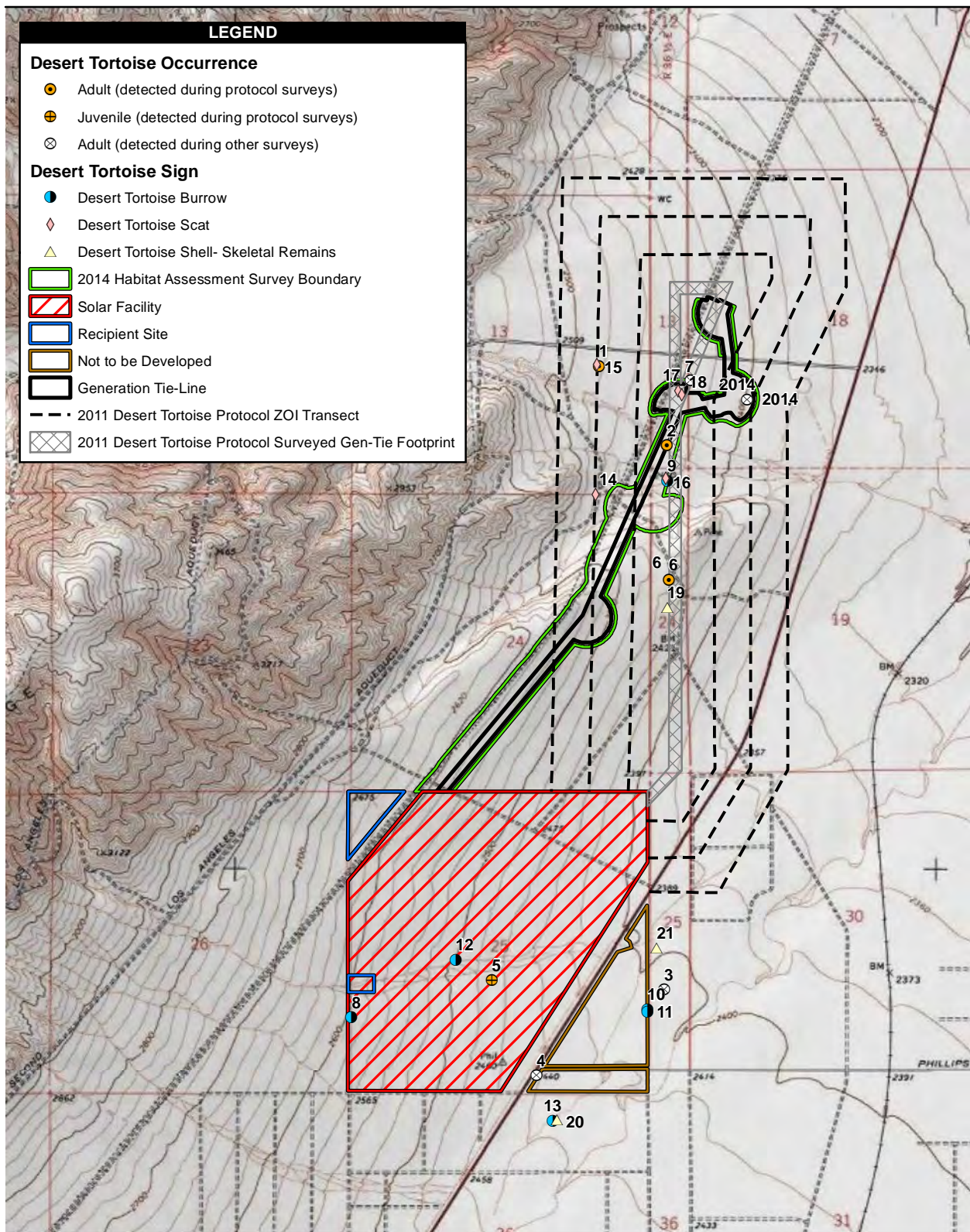


Figure 5
USGS Desert Tortoise Habitat Model

Habitat within the Permit Boundary is degraded due to proximity to existing transmission line corridors and SR-14. Data from several studies (Nicholson 1978, Boarman 1994, LaRue 1993, and Marlow et al. 1997) strongly support the hypothesis that heavily traveled roads are mortality sinks for tortoises. Further, Von Seckendorff Hoff and Marlow (2002) suggested that heavily traveled roads generate a “dead zone” on either side of the road where desert tortoise densities are depressed. The size of depressed zones around roads varies with the amount of use of the road and with other factors. While the exact size of the dead zone associated with SR-14 is not known, traffic on the road is heavy enough to depress the density of tortoises around the road and reduce connectivity of desert tortoise habitats in the area.

Desert tortoise surveys were conducted in accordance with the *Pre-Project Survey Protocol for Potential Desert Tortoise Habitats* (USFWS 2010a) for the solar facility in September and October 2010 (Rincon 2011a). Surveyors walked transects spaced approximately 10 meters (30 feet) between transect centerlines (the standard width for desert tortoise presence/absence surveys) that covered the entirety of the HCP Permit Boundary. In accordance with the desert tortoise survey protocol (USFWS 2010a), transects extending beyond the Permit Boundary were not conducted given that the solar facility site is non-linear and greater than 200 acres. Additionally, desert tortoise surveys were conducted for the original gen-tie line route in 2010 and 2011. The total area surveyed during 2010 and 2011 surveys is depicted in Figure 6. While the gen-tie line ROW was adjusted following 2010/2011 surveys, the current gen-tie line ROW is located just west of the original proposed alignment and the habitat is very homogeneous; therefore, the new alignment is expected to have very similar conditions as the surveyed alignment. This assumption was also tested and verified during a habitat assessment conducted in March 2014 along the final proposed gen-tie alignment (Figure 6).

Three desert tortoises were documented within and in the immediate vicinity (i.e., within approximately 300 feet) of the HCP Permit Boundary during 2010 s surveys (Figure 6). One juvenile was observed in a burrow west of SR-14 within the solar facility boundary, and one adult female was documented east of SR-14 and approximately 300 feet east of the HCP Permit Boundary during desert tortoise surveys (Rincon 2011a). The third desert tortoise was discovered during field reconnaissance surveys in 2010 at the intersection of SR-14 and Phillips Road (Rincon 2011a). This individual was recorded as an adult male (approximately 165 millimeters [mm] midline carapace length [MCL]). In addition to these sightings, suitable burrows (some with scat or tracks) were detected within and outside the solar facility boundaries. Desert tortoise shell skeletal remains were also observed south of the solar facility during 2010 s surveys. Observations of desert tortoise individuals, burrows, and shell skeletal remains recorded during surveys conducted for the solar facility are summarized in Table 1.



Source: RE Cinco 2010-2014, AECOM 2014, Copyright:© 2013 National Geographic Society, i-cubed

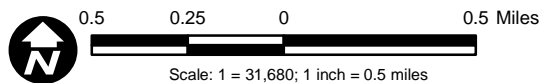


Figure 6
Desert Tortoise Observations
(2010-2011, 2014)

RE Cinco Project Desert Tortoise Relocation Plan

Path: P:\2011\11280215.01_Recurrent_PV\06GIS\6.3_Layout\DT Plan\Cinco\Cinco-DTP Species Survey Observations.mxd, 3/25/2014, janssenn

Table 1
Summary of Desert Tortoise Observations during Solar Facility Surveys

Map Point	Observation	Location (NAD 82, Zone 11)		Comments
		Easting	Northing	
3	Desert Tortoise	403636	3895996	2010: Adult female, detected approximately 300 feet east of the HCP Permit Boundary, east of State Route 14 (SR-14)
4	Desert Tortoise	402940	3895537	2010: Adult male desert tortoise observed at SR-14 and Phillips Road intersection
5	Desert Tortoise (in burrow)	402704	3896055	2010: Juvenile (MCL \leq 160 mm) observed inside burrow, west of SR-14 and within area to be developed for solar facility 2011: Juvenile observed inside same burrow
8	Desert Tortoise Burrow	401941	3895861	2010: At base of creosote bush in a drainage 2011: No sign of recent activity/use
10	Desert Tortoise Burrow (active)	403543	3895889	2011: Desert tortoise tracks observed at burrow
11	Desert Tortoise Burrow (active)	403545	3895876	2010: No comments 2011: Sign of desert tortoise activity
12	Desert Tortoise Burrow/2010, Desert Kit Fox Burrow/2011	402508	3896168	2010: Desert tortoise tracks present; five burrows/den entrances; 2011: Kit fox scat and tracks observed
13	Desert Tortoise Burrow	403026	3895291	2010: Detected approximately 500 feet south of HCP Permit Boundary and east of SR-14 2011: Coyote sign observed
20	Desert Tortoise Shell Skeletal Remains	403048	3895293	2010: Detected south of HCP Permit Boundary and east of SR-14
21	Desert Tortoise Shell Skeletal Remains	403597	3896220	2010: Detected east of SR-14 and HCP Permit Boundary

Sources: Rincon Consultants 2011a, 2011b

Four additional desert tortoises were documented north of the HCP Permit Boundary during 2011 surveys for the gen-tie line (Rincon 2011b) (Figure 6). All four desert tortoises were considered adults per the USFWS classification (i.e., MCL $>$ 160 mm). One of the adults was noted to be female. In addition, one desert tortoise burrow, five observations of desert tortoise scat, and one desert tortoise shell skeletal remains were recorded during 2011 surveys for the gen-tie line (Rincon 2011b) (Figure 6).

2.4 Desert Tortoise Take

The federal and state take permits allow take that is incidental to otherwise lawful activity if the impacts are minimized and fully mitigated, and if these mitigation measures are roughly proportional to the extent of the impact. Furthermore, the mitigation measures must maintain the

RE Cinco Project objectives, be capable of being implemented, and include adequate funding, and the issuance of the permit must not jeopardize the continued existence of the desert tortoise.

As some desert tortoises may be missed during focused surveys, the desert tortoise survey protocol (USFWS 2010) provides a table to estimate the number of adult tortoises within a survey area based on several factors. However, juveniles (MCL less than 180 mm) and individuals observed during non-protocol surveys are excluded from the USFWS equation. Therefore, given the data available for the Project and in accordance with recommendations from USFWS, an estimate of desert tortoises within the 500-acre solar facility was generated based on recent densities reported for the Fremont-Kramer monitoring stratum during annual range-wide monitoring conducted by USFWS (USFWS 2012a; 2012b; and 2012c). The average density of desert tortoise with MCL greater than 180 mm for the Fremont-Kramer monitoring stratum between 2010 and 2012 was approximately 2.7 tortoises per square kilometers (or approximately 1.1 desert tortoise per 100 acres), with a 95% confidence interval between approximately 2.2 and 3.5 tortoises per square kilometers (or approximately 0.9 to 1.4 desert tortoises per 100 acres). Therefore, using the upper 95% confidence interval, approximately seven desert tortoises with MCL greater than 180 mm are estimated to occur within the 500-acre portion of the HCP Permit Boundary that will be developed as part of the Project. The number of desert tortoises smaller than 180 mm is likely subject to greater changes over shorter periods of time because eggs hatch, the mortality rates of small animals are higher, and smaller individuals grow into the greater-than-180-mm size class; therefore, the number of smaller desert tortoises was not estimated. However, given survey results, we expect that few small individuals are present onsite.

After consideration of the potential effects and discussions with USFWS, the Project's HCP estimates mortality or injury of up to two adult (i.e., MCL greater than 180 mm) desert tortoise during the construction phase of the Solar Project. This take includes loss due to temporal losses, habitat fragmentation, and edge effects (indirect impacts). The Project's HCP also estimates the need to capture and relocate up to seven adult desert tortoise based on the estimate of tortoises occurring within the 500-acre portion of the HCP Permit Boundary that will be developed as part of the Project. Take limits are not provided for desert tortoise eggs and juveniles (i.e., MCL less than 180 mm) because the number of eggs and juveniles within the HCP Permit Boundary cannot be estimated with reasonable accuracy and eggs and juveniles are less likely to be detected by biological monitors relative to adult desert tortoises.

To comply with the requirements of the federal and state take authorizations, this Plan outlines the necessary clearance surveys, exclusion fencing, and monitoring to avoid and minimize impacts to desert tortoise.

3.0 PLAN PURPOSE

This Plan will generally follow guidance developed by the USFWS (2009, 2010b, 2011, and 2013). However, the development of this Plan has been tailored to the project's specific details regarding the desert tortoise. This purpose of this Plan is to provide direction for the clearance surveys and removal of desert tortoise (including all life stages) from harm's way during all phases of the RE Cinco Project. Should relocation be necessary, this Plan provides the basis for the relocation effort. This Plan is required as part of the USFWS HCP and CDFW 2081 ITP. This Plan incorporates, as appropriate for each phase of development, the standards set forth by the Wildlife Agencies (CDFW and USFWS) for the relocation of desert tortoise. In addition, this Plan's principal resource for protocols and guidelines is the USFWS website (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines), which provides the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009) containing the following information:

- Pre-Project Survey Protocol (for the 2010 field season) and Updated Clearance Survey Guidelines
- Handling Guidelines
- Exclusion Fence Specifications
- Qualifications and Requirements for Authorized Biologists
- Desert Tortoise Authorized Biologist Request Form

3.1 Plan Goals

The goals of this Plan are as follows:

- Avoid and minimize impacts to desert tortoise from the RE Cinco Project.
- Clear and monitor the site to verify that no desert tortoise occur on the site or may be affected by implementation of the RE Cinco Project.
- Define allowable actions should desert tortoise be detected within the RE Cinco Project site to avoid take.
- Define response procedures should a desert tortoise be found on the Project site and avoidance is not feasible (e.g., desert tortoise is in immediate danger of harm), including relocation procedures.

3.2 Definitions

This section provides several definitions relevant to the potential presence of desert tortoise and its movement off of the Project site. The following definitions are for use when discussing the movement of desert tortoise off of the Project site, and are based on the federal and state recovery guidelines:

Passive Relocation – If an animal is observed on the Project site or in an area of impact, it is provided the opportunity to passively move off of the site.

Move from Harm's Way – Physically moving desert tortoise a short distance out of the way of construction activity. This maintains the animal within what would be considered its home range. This may occur if the animal does not passively evacuate the Project site under its own accord.

Relocation – Relocation involves an Authorized Biologist (AB) physically moving a desert tortoise to one of the three proposed on-site relocation areas. Relocation occurs within what is considered to be the desert tortoise's home range. Home range is discussed further below.

Desert Tortoise Home Range –The size of a desert tortoise's home range varies temporally (seasonally and over the lifespan of the desert tortoise) and within and between populations. Annual home range sizes of desert tortoise in the Mojave Desert have been estimated to be between 1 to 89 hectares (2.5 to 220 acres) (Duda et al. 1999; Field et al. 2007).

4.0 QUALIFICATIONS AND DUTIES OF BIOLOGISTS

The RE Cinco Project will designate a lead Authorized Biologist (AB) with approval of the AB from USFWS and CDFW. The AB will be a qualified biologist experienced with desert tortoise ecology and the principles of conservation biology, and will meet the qualifications of an AB in experience and capabilities, as defined by the USFWS. The AB will be responsible for compliance with this Plan and overall biological compliance of the RE Cinco Project during all phases. The AB will be supported by one or more Desert Tortoise Monitors (DTMs).

An AB and DTM will be appointed for overseeing clearance surveys and monitoring. The AB is responsible for handling of any desert tortoise. The primary responsibility of the DTM will be to

monitor construction activities, such as fence installation. The AB will be responsible for directing the overall desert tortoise program, including clearance surveys, monitoring, and reporting.

5.0 RECIPIENT AND CONTROL SITES

Relocation of a desert tortoise would require identification of the recipient and control sites, as appropriate, per USFWS guidance (USFWS 2011). Each of these sites as applicable to the RE Cinco Project, should relocation occur, is described below.

5.1 Desert Tortoise Site Status

Desert tortoise were observed in areas within and adjacent to the RE Cinco Project site east of SR-14. Since one of the purposes of this Plan is to provide guidance for relocation efforts, the location of live desert tortoise observed during surveys was used to assist in predicting where desert tortoise are likely to be observed during construction, and to determine an appropriate recipient site for these desert tortoise, if needed. Three desert tortoises were observed during 2010 surveys. Four additional desert tortoises and one individual also observed in 2010 were documented during 2011 surveys (Figure 6). Specific details regarding these desert tortoise observations are discussed in Section 2.3 of this Plan.

Numerous variables affect the size of a desert tortoise's home range, including the sex of the animal, biotic resources, the social environment, population demographics, predator avoidance, and water availability. Male desert tortoise have been observed having larger home ranges (average of approximately 112 acres) than females (average of approximately 44 acres) (Franks et al. 2011; O'Conner et al. 1994). Males roam more to search for mates (Schubauer et al. 1990) and to defend territories (Morreale et al. 1984). Given the highly variable conditions in the desert environment (rainfall patterns vary greatly both spatially and temporally), it follows that the behavior of desert wildlife species dependent on the success of vegetation would also vary. desert tortoise have been found to have larger home ranges in years with higher rainfall and more plant productivity, and, similarly, have been found to have larger home ranges at sites with higher plant productivity when compared to sites with lower plant productivity (Duda et al. 1999).

Desert tortoise surveys at the RE Cinco Project site occurred during 2010 and 2011; one year with slightly above-average rainfall (0.10 inches in 2010), and one year of above-average rainfall (23.75 inches in 2011) at Mojave Airport (Weather Station KMHV), where average rainfall for

the region is 0.06 inches. However, the rainfall during 2010 and 2011 was skewed to the winter in 2010 (all 0.10 inches were recorded in December) and summer and fall months in 2011 (with 23.35 inches of precipitation falling during the months from July through November). The spring season, when annual wildflower production would benefit the greatest from rainfall, actually saw below-average precipitation. Due to lower than average rainfall during the spring season, desert tortoise home ranges during the survey effort might have been reduced compared to average years.

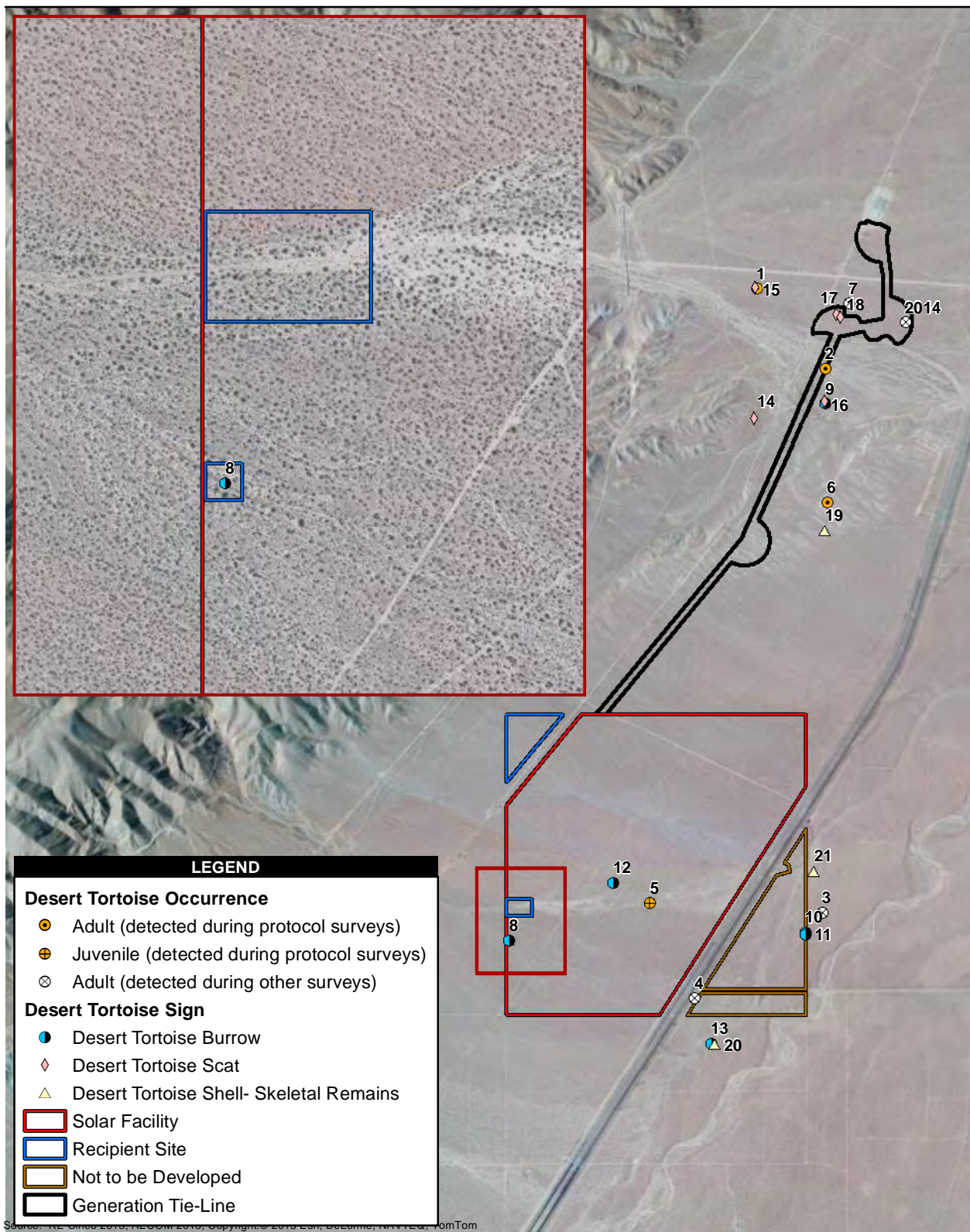
5.2 Recipient Sites

Three options for on-site recipient sites have been proposed for relocation of desert tortoise from the RE Cinco Project site, if necessary. Each option is presented below. Each of these sites is within the control of RE Barren Ridge Solar 1, LLC and could receive desert tortoise from the RE Cinco solar site. The remainder of the adjacent property around the solar site is BLM lands. Desert tortoise cannot be move from private lands onto the BLM lands. These sites were also included within the protocol-level desert tortoise surveys conducted for the Project; however, surveys will be conducted again at the Primary Recipient Site prior to the start of construction to perform visual health assessments on desert tortoise observed. Recipient site locations require approval from USFWS and CDFW. Because the proposed recipient sites are further than 1,000 meters from some portions of the Project site, tortoises found in these more distant portions of the Project site will require translocation.

5.2.1 Site No. 1 - Northwest Corner of Project Area

One of the proposed recipient sites is an approximately 13.75-acre site composed of intact desert scrub habitat on the northwest corner of the Project area (referred to as the Primary Recipient Site), but will be excluded from development. The Primary Recipient Site is depicted in Figure 7. The site was chosen based on several factors, including land ownership (the entirety of the Primary Recipient Site is owned by RE Barren Ridge Solar 1, LLC), proximity to known areas of desert tortoise occupation (two desert tortoise were observed within the Project site, and the recipient site is likely within the home range of any desert tortoise that will require relocation), and connectivity to intact desert tortoise habitat in the region. This site is also surrounded by BLM lands which also currently support desert tortoise.

Based on the 2010 and 2011 desert tortoise survey data of the HCP Permit Boundary, the closest known desert tortoise burrow was approximately 777 meters southeast of Site No. 1; the closest



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

documented desert tortoise was approximately 950 meters southeast of this proposed relocation site. Site No. 1, which is located on the northwest corner of the project area, is approximately 1,470 meters from the most distant location within the solar facility footprint, thereby representing the maximum relocation distance to Site No. 1.

A limitation associated with the Site No. 1 is the proximity of the site to SR-14. However, the Primary Recipient Site is likely within the home range of any relocated desert tortoise, and SR-14 was already present, so desert tortoise have persisted here despite habitat degradation and associated edge effects. In the event that desert tortoise need to be relocated to the Primary Recipient Site, RE Barren Ridge Solar 1, LLC would provide a plan for the long-term conservation of the Primary Recipient Site.

5.2.2 Site No. 2 – Xeric Riparian Wash

The Secondary Recipient Site proposed is also located within the Project Area, and is an approximately 3.16-acre site composed of intact desert scrub habitat in a xeric desert wash. Similar to the Primary Recipient Site, it will be fenced out of and excluded from development. The benefits and limitations of the Secondary Recipient Site mirror those associated with the primary site. Though this is a small area, the intent is to release the desert tortoise on accessible lands that are contiguous with desert tortoise habitat likely within the desert tortoise home range and allow desert tortoise on the site to continue to use adjacent areas as opposed to being moved to a completely separate site and introducing associated potential greater affects to the desert tortoise.

The closest desert tortoise burrow documented in the vicinity of Site No. 2 is located approximately 125 meters south of this proposed relocation site. This burrow is also located within the boundaries of Site No. 3 (see below). The nearest desert tortoise was documented approximately 686 meters due east of Site No. 2. The furthest point from Site No. 2, within the solar facility footprint, is approximately 1,850 meters distant, in the northeast corner of the solar facility site, west of SR-14.

5.2.3 Site No. 3 – Existing Desert Tortoise Burrow and Buffer Area

A third Recipient Site identified a third potential on-site recipient site for desert tortoise relocation. This 0.23-acre site includes an existing desert tortoise burrow located in desert scrub vegetation on the west side of the Project Area, and would be fenced out of the Project's development footprint. The benefits and limitations of the Tertiary Recipient Site are similar to

those of the primary and secondary sites. Similar to Site No. 2, this is a small area; however, the intent is to release the desert tortoise on accessible lands that are contiguous with desert tortoise habitat likely within the desert tortoise home range and allow desert tortoise on the site to continue to use adjacent areas as opposed to being moved to a completely separate site and introducing associated potential greater affects to the desert tortoise.

As noted, Site No. 3 c contains a documented desert tortoise burrow. During desert tortoise surveys, a tortoise was observed approximately 767 meters east-southeast of Site No. 3. The point furthest from Site No. 3 within the solar facility footprint is approximately 2,040 meters northeast of this proposed relocation site.

5.3 Control Site

A control site is not required for the RE Cinco Project. In accordance with USFWS guidance (2011), a control site is not required if fewer than five desert tortoise would be relocated or translocated from a project area (exclusive of desert tortoise moved out of harm's way along a linear feature). The RE Cinco Project does not expect to relocate or translocate five or more desert tortoise from the Project solar site. Any desert tortoise found along the transmission line would be moved out of harm's way and would not be considered relocation.

6.0 PRE-CONSTRUCTION SURVEYS, CLEARANCE SURVEYS AND RELOCATION

Pre-construction surveys will be conducted for linear features, and clearance surveys will be conducted for nonlinear features to verify that no desert tortoise are present in the RE Cinco Project site prior to construction activities. Pre-construction surveys will be conducted not greater than 48 hours prior to any authorized activity along a linear feature, such that any tortoise detected within the area of impact can be allowed to passively relocate on its own. If the tortoise does not passively relocate itself, the AB or other authorized individual will move the tortoise out of harm's way. Following pre-construction desert tortoise surveys, activities associated with linear features will be monitored by the AB or DTM. Clearance surveys will follow the protocols found in the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009).

Pre-construction surveys may be conducted any time of the year. Clearance surveys are typically conducted during the desert tortoise active period (April through May or September through October) to increase the probability of detection of desert tortoise. Due to the likelihood of finding desert tortoise within the RE Cinco Project site and the known occurrence of tortoises within the solar facility footprint, clearance surveys will be conducted during the desert tortoise

active season (April/May; September/October or when climate and site conditions are appropriate to facilitate detection of tortoises as agreed to by the USFWS). Clearance/pre-construction survey methods for each construction type (linear, fencing, nonlinear) are described in more detail below. In addition to a description of the clearance methods, these sections also include a description of actions that will occur should a desert tortoise be detected during clearance surveys.

The ITP allows for scoping (fiber optics to see within a burrow), so any potential desert tortoise burrows will be scoped to determine occupancy prior to excavation. Any desert tortoise nest that may be found will be relocated, if deemed necessary, following the guidance outlined in this Plan.

6.1 Linear Features

BA Measure DT-2: Measure Description. Prior to the start of gen-tie line construction, ABs, and DTMs under the direction of an AB, will conduct a desert tortoise survey for desert tortoise within the gen-tie line ROW in accordance with current USFWS guidelines (USFWS 2009). The pre-construction survey of the gen-tie line ROW will occur no more than 48 hours before planned activity. The pre-construction survey may be conducted during any time of year and will consist of transect surveys at no greater than 5 meters (15 feet) within the gen-tie line ROW and a 50-foot buffer area. All burrows that could provide shelter for a desert tortoise will be avoided if at all possible through final project design. Burrows that cannot be avoided will be excavated during the pre-construction survey. ***Timing.*** Pre-construction.

Within 48 hours before the start of construction, surveys will be conducted for linear features, including transmission lines, underground lines and cables, roads, and some fences. Surveys (100% coverage) will be conducted in accordance with USFWS-approved protocols, with transects spaced no greater than 5 meters (15 feet) apart within the construction disturbance area, with a 15-meter (50-foot) buffer on either side of the disturbance area (three additional transects on either side). If a desert tortoise is observed during surveys, in all cases, USFWS and CDFW will be notified immediately. Any desert tortoise observed during linear survey work will be allowed to move out of harm's way on its own (passively relocate). Passively relocated desert tortoise will be monitored from dawn until dusk until the desert tortoise finds adequate cover or appears to travel on its own accord a significant distance from the Project (greater than 1,000 m). The distance or direction of travel of the desert tortoise will not be affected by the monitoring efforts, so desert tortoise behavior will not be altered. If passively relocated desert tortoise appear to struggle (due to activities such as walking during inappropriate temperatures), desert tortoise

may be handled to bring the desert tortoise into appropriate shade or similar efforts (see section 7.2.3 below) to reduce impacts to a desert tortoise. Passive relocation in this Plan refers to monitoring desert tortoise that appear to be leaving the Project on their own accord and may also involve opening desert tortoise exclusion fencing to allow egress of a desert tortoise from the Project. It does not refer to “herding” or altering the distance or direction of movement. No desert tortoise along linear features or unfenced areas will be handled unless it is in immediate danger of harm or does not move out of harm’s way within a reasonable amount of time (see below and Section 7.1 for handling procedures). The AB or qualified DTM will allow a minimum of 15 minutes to elapse in order to provide the tortoise an opportunity to vacate the area on its own. Following the 15 minute period, if the tortoise has not moved out of harm’s way on its own (i.e., passive relocation), the AB or DTM will follow all pertinent procedures outlined in this Plan to either move the tortoise out of harm’s way or relocate the tortoise.

If a potential desert tortoise burrow is encountered that cannot be avoided, and a determination cannot be made whether or not the burrow is occupied by desert tortoise, the burrow will be scoped (fiber optics to see within a burrow) to determine if the burrow is occupied. If the burrow is not occupied, it will be collapsed in accordance with standard protocols. If the burrow is occupied, the AB will excavate the burrow and relocate the desert tortoise as described in this Plan, and as authorized by the USFWS and CDFW ITPs.

Any desert tortoise observed and allowed to passively relocate (move on its own) will be documented in the pre-construction survey reports and/or monitoring forms, including a description of its condition based on visual observations without handling. Photographs will be taken wherever possible. Following pre-construction surveys and confirmation that no desert tortoise are in the vicinity of construction activities, construction will be allowed to commence. A qualified DTM will be present in the immediate vicinity of all construction activity along linear features, such as along the transmission line corridor, and outside of fenced areas.

If, after construction begins, a desert tortoise is observed in a construction area, construction in the area that may adversely impact the desert tortoise will be stopped until a biologist has verified that the desert tortoise has moved out of harm’s way on its own. The determination of the amount of construction activity that could negatively impact the desert tortoise will be made in the field by the AB. The AB or DTM will monitor the desert tortoise until it is confirmed to be out of harm’s way. If the AB determines that the desert tortoise will not passively relocate, the AB may actively relocate the individual out of harm’s way, as described in this Plan, and as authorized by the USFWS and CDFW ITPs.

Any desert tortoise encountered along linear features will be allowed to passively relocate prior to work being conducted. In the case of imminent danger to desert tortoise along a linear feature, the desert tortoise will not be relocated to a recipient site, but will be moved out of harm's way to a safe area directly adjacent to where the desert tortoise was first observed, but not into another project area. The desert tortoise will be monitored during all construction-related work in the vicinity of the desert tortoise. A visual health assessment and photographs of any desert tortoise moved out of imminent danger along a linear feature will be conducted, but no further actions will be taken to avoid further disturbance to the desert tortoise. In the event that a desert tortoise observed along a linear feature shows clinical signs of infection, the animal will be removed, quarantined, and transferred to an approved veterinary facility to be further evaluated and treated. Any potentially sick desert tortoise taken to an approved facility will be left in the care of that facility and under their control for final disposition of the desert tortoise in accordance with their permits.

6.2 Nonlinear Features

HCP Measure DT-3: Measure Description. Prior to ground disturbance at the solar facility site, the solar facility site will be fenced with permanent desert tortoise exclusion fencing to keep desert tortoises in neighboring habitat from entering the facility during construction, O&M, and decommissioning phases. Where the location of desert tortoise exclusion fencing corresponds to the solar facility perimeter security fence, it may be attached to the security fencing. The exclusion fence will follow current fence specifications established by USFWS (USFWS 2005). Where fence burial is not possible, the mesh will be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent desert tortoise from digging under the fence. Desert tortoise exclusion gates will be established at all solar facility entry points. Temporary fencing will be installed where necessary for each Project component during construction activities to prevent desert tortoise entry during construction. Temporary fencing will follow guidelines for permanent fencing, and supporting stakes will be sufficiently spaced to maintain fence integrity. Clearance of the desert tortoise exclusion fencing location must occur within 48 hours prior to fence installation. All desert tortoise exclusion fence construction will be monitored by a DTM to ensure that no desert tortoise is harmed. Following installation, the fencing will be inspected monthly and immediately after all major rainfall events. Any damage to the fencing will be repaired within 2 days of observing the damage and reported to the resource agencies to determine whether additional measures are necessary. Ground-disturbing activities at the solar facility may begin immediately after fence installation and tortoise clearance and relocation.

Timing. Pre-construction, construction, O&M, decommissioning.

HCP Measure DT-4: Measure Description. After fence installation at the solar facility site, ABs or DTMs under the direction of an AB will conduct clearance survey for desert tortoise within the fenced solar facility. A minimum of two surveys without finding any desert tortoise or new desert tortoise sign must occur prior to declaring the site clear of desert tortoise. All burrows that could provide shelter for desert tortoise will be excavated during the first clearance survey. Any desert tortoise found within the fenced solar facility will be moved to a location in accordance with the HCP. **Timing.** Pre-construction.

HCP Measure DT-5: Measure Description. Following clearance surveys at the solar facility site, the AB will prepare a report that documents the survey methods used, names of surveyors, timing, weather, handling methods, capture and release locations of all desert tortoise found, individual desert tortoise data, and other relevant data. This report will be submitted within 15 days of completion of the clearance surveys to resource agency representatives. **Timing.** Pre-construction, construction.

6.2.1 Security/Exclusion Fence Construction

Prior to construction of Solar Facility features, a perimeter security fence will be installed that will incorporate wildlife exclusion features to keep desert tortoises in neighboring habitat from entering the facility during construction, O&M, and decommissioning phases. The solar facility will be enclosed with security fencing approximately 7 feet in height (6 feet of chain-link fence and 1 foot of barbed wire). Perimeter fencing surrounding the solar facility will also include desert tortoise exclusion fencing constructed in accordance with USFWS specifications or desert tortoise fencing will occur outside of the perimeter fencing. Access to secure areas will be controlled by keypad entry systems. Two gated entrances will be located off of SR-14: one at Phillips Road and the other at the unnamed roadway (BLM Route MK50) approximately 0.75 mile farther north along SR-14. Where the location of desert tortoise exclusion fencing corresponds to the solar site facility perimeter security fence, it may be attached to the security fencing. The exclusion fence will follow current fence specifications established by USFWS (USFWS 2005). Where fence burial is not possible, the mesh will be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent desert tortoise from digging under the fence. Desert tortoise exclusion gates will be established at all solar facility entry points. Temporary fencing will be installed where necessary for each Project component during construction activities to prevent desert tortoise entry during construction. Temporary fencing will follow guidelines for permanent fencing, and supporting stakes will be sufficiently spaced to maintain fence integrity. Clearance surveys of the desert tortoise exclusion fencing location must occur within 48 hours prior to fence installation. All desert tortoise exclusion fence

construction will be monitored by a DTM to ensure that no desert tortoise is harmed. Following installation, the fencing will be inspected monthly and immediately after all major rainfall events. Any damage to the fencing will be repaired within 2 days of observing the damage and reported to the resource agencies to determine whether additional measures are necessary. Ground-disturbing activities at the solar facility site may begin immediately after fence installation and an initial tortoise clearance survey and relocation.

If a potential desert tortoise burrow is encountered that cannot be avoided, and a determination cannot be made whether the burrow is occupied by desert tortoise, the burrow will be scoped (fiber optics to see within a burrow) to determine if the burrow is occupied. If the burrow is not occupied, it will be collapsed in accordance with standard protocols. If the burrow is occupied, the AB will excavate the burrow and relocate the desert tortoise as described in this Plan.

After fence installation, ABs or DTMs under the direction of an AB will conduct clearance surveys for desert tortoise within the fenced solar facility (see Section 6.2.3 below).

6.2.2 Desert Tortoise Exclusion Fenced Areas

After construction of exclusion fences has occurred, additional formal desert tortoise clearance surveys will be conducted within the enclosed areas. A clearance survey for tortoises will be conducted inside the completed perimeter Project boundary tortoise fence or suitable temporary fence. Clearance surveys will coincide with heightened tortoise activity to maximize the probability of finding all tortoises. These periods occur from April through May and during late September through October (and often into early November). Clearance will occur, if possible, within 30 days of fencing, or within 30 days of tortoises becoming active after fencing is completed. For instance, if fencing is completed in between November and March (inclusive) when tortoises are largely inactive, then clearance surveys will occur beginning in by April, once tortoises in the area are found to be consistently active. If fencing is completed from April through September, then clearance would occur beginning in late September.

Per USFWS (2009) guidelines, a minimum of two, 100% coverage clearance passes will be completed. For the Project Area to be deemed cleared of tortoises, no additional tortoises may be found for two consecutive clearance passes. If a tortoise is found during any clearance pass, two subsequent clean passes (i.e., no new tortoises) must follow before the Project Area can be declared to be cleared of tortoises. If desert tortoise are located onsite, as found during the presence/absence surveys, at least three surveys should be expected prior to obtaining two consecutive clearance survey sweeps with no desert tortoise found.

Clearance transects will be 15 ft wide. Transects narrower than 15 ft wide will be used if dictated by dense shrub vegetation or where visibility is otherwise compromised. On each subsequent pass, an attempt will be made to view all shrubs and the terrain from as many angles as possible. To achieve this, transects programmed into GPS units will be either perpendicular, parallel but offset, and/or approached from the opposite direction on each subsequent pass (Karl and Resource Design Technology, Inc., 2007).

All tortoise sign will be mapped and evaluated (e.g., type, age, size) during all passes, and all scat collected. During subsequent passes, areas where fresh scat is found will prompt concentrated searches. After the second pass, concentrated searches will be conducted in all areas where recent sign is concentrated, unless a tortoise has been found in that area.

No burrows will be collapsed until the last pass, assuming that all tortoises probably have been relocated from the Project Area. (Fresh burrows used by other wildlife, including badgers or foxes, will not be collapsed until occupants have been removed via active or passive techniques approved by CDFG.) While clearance is planned to occur when ambient temperatures are safe for relocating tortoises, ambient temperatures may rise unexpectedly during the second pass such that tortoises or other wildlife might be trapped in the open if its burrow has been excavated and collapsed during the search effort. To assist the identification of currently used burrows, all burrows will be inspected and assessed for occupation or recent use by tortoises during the prior pass(s), gated with small sticks along the entrance to detect future use, mapped and flagged. On the last pass, burrows will be completely excavated using standardized techniques approved by USFWS (2009a) and the Desert Tortoise Council (1994). During excavation, attention will be given to potential tortoise nests (see Nest Relocation, below).

Table 2 summarizes the steps associated with this Plan.

Table 2
Action/Relocation Steps

Step	Type	Activities
1.	Pre-construction and Clearance Surveys	Pre-construction and clearance surveys will be performed for all construction activities, linear and nonlinear. Pre-construction surveys may be conducted any time of year. Clearance surveys will be conducted during the desert tortoise active season (April/May; September/October or when climate and site conditions are appropriate to facilitate detection of tortoises as agreed to by the USFWS). Clearance surveys will follow USFWS protocols.
1.A.	Pre-construction Surveys, Linear Features	Clearance surveys will be 5 meters (15 feet) apart with a 15-meter (50-foot) buffer outside the area of disturbance. If desert tortoise is observed, it will be allowed to move out of harm's way on its own, and documented as applicable. Following

Step	Type	Activities
		confirmation that no desert tortoise are in the vicinity, construction will be allowed to commence. If desert tortoise is observed after construction begins, construction in the vicinity of the desert tortoise will be stopped until the desert tortoise moves out of harm's way on its own. If the desert tortoise has not moved out of harm's way on its own, an AB or DTM will move it out of harm's way, as defined in this Plan.
1.B.	Recipient Site Surveys	Prior to the initiation of desert tortoise clearance surveys of nonlinear features, protocol-level desert tortoise surveys will be conducted at the recipient site to determine the density and disease status of the population within the recipient site. Visual health assessments will be conducted for desert tortoise at the recipient site, but no handling will occur.
1.C.i.	During Exclusion Fence Construction	Clearance of the desert tortoise exclusion fencing location must occur within 48 hours prior to fence installation. All desert tortoise exclusion fence construction will be monitored by a DTM to ensure that no desert tortoise is harmed. Prior to construction of site features, desert tortoise exclusion fencing will be constructed according to USFWS (2009) specifications. Following installation, the fencing will be inspected monthly and immediately after all major rainfall events. Any damage to the fencing will be temporarily repaired immediately and permanently repaired within 3 days of observing the damage and reported to the resource agencies to determine whether additional measures are necessary. Ground-disturbing activities at the solar facility may begin immediately after fence installation and tortoise clearance and relocation.
1.C.ii.	Clearance of Nonlinear, Exclusion-Fenced Areas	Clearance surveys will be conducted inside of areas that are fully fenced with desert tortoise exclusion fencing. Clearance surveys will follow current USFWS protocols including 100 percent coverage and two consecutive passes without detecting any desert tortoise. Desert tortoises detected within the exclusion fencing will be relocated in accordance with this plan to the recipient site that is the shortest distance from the location where the tortoise was found.
2.	Monitoring	All desert tortoise exclusion fence construction will be monitored by a DTM to ensure that no desert tortoise is harmed.

7.0 HANDLING DESERT TORTOISE

This section describes the practices to be followed by the AB when moving desert tortoise out of harm's way, whenever a desert tortoise will not or cannot move out of harm's way on its own (passively relocate), or when relocating a desert tortoise. Under such circumstances, the AB will relocate a desert tortoise as permitted under the authorization of the USFWS and CDFW ITPs.

If a desert tortoise must be moved out of harm's way because it is in imminent danger or is found injured, the AB will follow protocols as defined in the USFWS guidance document (USFWS 2009) and within this Plan, including health considerations and transportation. Prior to the initiation of any clearance surveys and construction activities, Project staff will identify an

approved veterinary facility where any injured desert tortoise can be taken in the event one is found injured.

7.1 Desert Tortoise Handling Procedures

7.1.1 Health Considerations

Desert tortoise are susceptible to diseases such as upper respiratory tract disease (URTD), herpesvirus, shell diseases, bacterial and fungal infections, and urolithiasis (bladder stones) that could have significant impacts on populations. There are at least two pathogenic species of *Mycoplasma* known to cause URTD in desert tortoise (*M. agassizii* and *M. testudineum*), and ELISA tests of drawn blood are necessary to detect both species. Blood draws are required only if the desert tortoise must be moved to an off-site relocation site (Site No. 4, location to be determined if deemed necessary). Procedures for handling desert tortoise to reduce the risk of disease transmission are outlined in Attachment 1, “Health Assessment Procedures for the Mojave Desert Tortoise (*Gopherus agassizii*): A Handbook Pertinent to Translocation” (USFWS 2013), and are incorporated into this Plan as appropriate.

Desert tortoise on the RE Cinco Project site would be relocated within their home range to a designated recipient site. Any desert tortoise that must be handled, whether relocated or moved out of harm’s way, will be given a visual health assessment to minimize the risks of spreading disease. Health assessments include a physical inspection of the desert tortoise, and body mass and carapace measurements. In addition, desert tortoise at the recipient site would be visually screened for health conditions.

7.1.2 Disinfection/Sanitation Protocols

To avoid spreading infectious diseases or contaminating samples, disposable latex or nitrile gloves must be worn when handling desert tortoise, and gloves must be discarded between handling desert tortoise. A disinfection protocol and disinfectant solutions appropriate for work with desert tortoise are described in Attachment 1. All equipment must be thoroughly cleaned and disinfected prior to arriving at the field site and before and after handling each desert tortoise.

7.1.3 Tortoise Capture/Handling

Desert tortoise are to be captured and handled as per Chapter 7 of the Desert Tortoise (Mojave Population) Field Manual (USFWS 2009) and Section 7.8 of the ITP. Only the AB will handle desert tortoise. Desert tortoise are to be handled slowly and gently to discourage bladder voiding. If the desert tortoise urinates, it will need to be rehydrated. This consists of soaking the desert tortoise at the release location in a tub with tepid water at a level lower than the jaw of the animal for 10 to 20 minutes in a quiet, protected area. Desert tortoise should be weighed before and after soaking.

Desert tortoise are not to be handled, transported, released or caused to leave a burrow when the ground temperature is higher than, or expected to be higher than, 95 degrees Fahrenheit (°F) prior to the completion of handling. Temperatures are to be measured in the shade and in an area that is protected from the wind at a height of 2 inches from the ground. Desert tortoise must be kept in the shade at all times until safe to release.

If during handling ambient air temperatures exceed 95°F, the desert tortoise will be kept in a shaded environment that does not exceed 95°F and will not be released until ambient air temperatures fall below 95°F.

Alternatively, the tortoise can be collected in a sterile, covered tub, held in a climate-controlled location (e.g., Project office), transmittered, and released in early evening, when air temperature has dropped below 95°F or the following morning. All boxed tortoises would be checked several times until released, to ensure their safety.

All desert tortoise relocated will be measured, weighed, assessed for health, affixed with a transmitter, and transported. Measurements include the midline carapace length from the nuchal to the pygal scutes using calipers. Desert tortoise are to be weighed using a harness if using a spring scale.

Prior to marking desert tortoise, the Desert Tortoise Recovery Office and CDFW must be contacted to obtain a unique identifier for the desert tortoise. Dirt will be removed from the left fourth costal scute using a disinfected toothbrush (or right fourth costal scute if left is damaged). White Out will be used to create a dot (1/4 inch in diameter) on the scute. Once the spot is dry, the unique identified will be written on the spot with waterproof, permanent blank ink. Once the number is dry, a 5-minute epoxy will be applied. Growth areas (border between scutes) will be avoided. The ID mark will be recorded on the data sheet.

Photographs of desert tortoise should include the following:

- Dorsal view of the desert tortoise
- Numbered scute
- Frontal view of desert tortoise face and forelegs
- Any recent or previously healed injuries/anomalies

Transport for movement of a few hundred feet or less will consist of hand-carrying the desert tortoise as close to the ground level as possible and in its normal spatial orientation. Transport any farther will involve a box, as described above, and within a vehicle. The vehicle temperature should be between 75 and 80°F in the summer; in winter, the desert tortoise will be maintained at its current body temperature. Desert tortoise will be released as near to their point of capture as possible. Per USFWS (2009) recommendations, relocated desert tortoise will not be put into existing burrows, but will be placed in artificial burrows. Desert tortoise found aboveground will be transported to an aboveground location in the shade, with artificial burrows available in the vicinity.

Handling a desert tortoise for a health assessment and sample collection must be completed in 30 minutes or less (not including rehydrating a desert tortoise that has voided).

7.1.4 Transmitters

Transmitters will be applied to relocated desert tortoises to facilitate monitoring of the desert tortoise, with the exception of brumating (~hibernating) tortoises. A brumating tortoise will not be removed from its burrow for the sole purpose of transmitting it. If a tortoise in a burrow that cannot be avoided and tortoises are still in brumation, then an artificial burrow that replicates the capture burrow (i.e., location relative to a shrub, direction, length) will be constructed as nearby as possible outside the Project fence (but on land owned by RE Barren Ridge Solar 1, LLC) and in an area where construction has finished (i.e., the tortoise will not be disturbed). Transmitters will be affixed onto a carapace scute with 5-minute gel epoxy. Transmitters will be attached to the fifth vertebral for males and to the anterior carapace for females. The transmitter antenna will be inserted in a plastic sheath, and the sheath will be attached low on the carapace, just above the marginal scutes, with a split at the growth areas to prevent distortion of the desert tortoise shell during growth.

7.1.5 Tortoise Transportation and Holding

Tortoises that only need to be moved a few hundred feet will be hand-carried to the release site. Each tortoise that is hand-carried will be kept upright and the handler, wearing disposable examination gloves (one pair per tortoise), will move the tortoise as quickly and smoothly as possible. Tortoises that must be moved further from the capture site or temporarily held in a climate-controlled situation will be sequestered in individual, sterilized tubs with taped, sterilized lids or single-use cardboard boxes with lids. During transport by vehicle, the tortoise tub will be kept shaded and the tub will be placed on a well-padded surface that is not over a heated portion of the vehicle floor. These measures are consistent with USFWS (2009a: Section 7.10).

Should a tortoise void or defecate between capture and release, it will be thoroughly rinsed to remove potential attracting odors to predators. Then, it will be placed in a shallow bath of room temperature water to re-hydrate it, per USFWS (2009a: Section 7.9). The tortoise's mass following this procedure will be recorded.

All tortoises relocated from the site will be measured, weighed, assessed for health, and affixed with a transmitter at the time of initial capture, and transported as described in detail, above. Transmitted tortoises will be located daily the first week after transmitting and weekly thereafter until relocation.

All tortoises will be relocated at least one week before daily, midday temperatures are expected to exceed 95°F (35°C) air temperature (at 2 in) or 109°F (43°C) ground surface temperature, whichever is lower. This is expected to occur following the second clearance pass. No tortoise will be moved when air temperatures are expected to exceed 90°F (32°C) within three hours of release (USFWS 2011). Relocations should occur in spring (April 1 through May 31). However, relocations may occur outside of the spring season if weather conditions at the recipient site are favorable, and approved by the USFWS and appropriate State wildlife agency (USFWS 2011).

Two artificial burrows, each at least 4 ft (1.2 m) long, will be constructed for each tortoise, using a gas-powered auger or shovel/plywood, per USFWS (2009a) guidance. For the period of time that tortoises are in the pens, the pen fences and the penned tortoises will be checked twice daily for the first two weeks, or until fence-walking (should it occur) ceases, whichever is longest. Until serology reports are obtained, the penned tortoises will then be checked daily.

No tortoise with clinical signs of mycoplasmosis will be relocated. Schumacher *et al.* (1997) observed that clinical signs had a high statistical correlation with positive serology (i.e., exposure

to *Mycoplasma agassizii*). A mucous nasal discharge was the clinical sign that was the most reliable predictor (93% of tortoises with a mucous nasal discharge were seropositive), although it could be caused by pathogens other than *M. agassizii*. Furthermore, a purulent nasal discharge was the only clinical sign that was relatively objective; other clinical signs were far more subjective, were potentially present for other reasons, and reduced the statistical predictability of positive serology. For the MSP, a purulent nasal discharge will be the threshold to identify a diseased tortoise.

Desert tortoises determined to be infectious or unhealthy will be sent to an agency-approved facility where they will undergo further assessment, treatment, and/or necropsy. RE Barren Ridge Solar 1, LLC will pay the veterinary costs associated with treatment of an ill or injured desert tortoise up to but not exceeding \$3,000 (Desert Tortoise Conservation Center estimated cost for one year of housing, care, treatment, and other services).

Juvenile tortoises, especially those under 4.4 inches (110 mm) in length, are highly subject to depredation by canids, badgers, and ravens, and require special consideration for successful relocation. Little is known about juvenile tortoise movements. Based on two studies of hatchling and/or juvenile tortoises, the mean distance translocatees moved in approximately one month was 521-723 ft (158-219 m; Hazard and Morafka 2002). For non-translocated hatchlings, the distance between nests and first-year hibernacula was 304-350 ft (92-106 m; TRW 1999b). Juvenile tortoises will be released under a shrub and monitored as described in **Section 8.0, Monitoring**, below.

7.1.6 Nest Relocation

Any nests found between November 1 and April 15 are unlikely to be viable and will not be moved; hatching is typically completed by October. In the event that nests are found between April 15 and October 31, the nests will be moved. Eggs will be inspected to determine if they are viable and, if so, will be moved to an identical microsite (e.g., cover, plant species, soil type, substrate, aspect) on the approved Recipient Site using standard techniques (e.g. Desert Tortoise Council 1994, USFWS 2009a). Relocated nests will be fenced with open-mesh fencing (e.g. 2-inch wide mesh) that will permit hatchlings to escape but prevent depredation by canids that might be attracted to the new nests by human scent predator entry. Open-mesh fencing or avian netting also will be installed on the roof of the nest enclosure to prevent predator entry. Nests will be monitored from a 30-foot distance once a month until late November, at which time they will be excavated for examination. If possible, hatchlings will be weighed, measured, photographed, described and marked.

7.2 **Disposition Plan**

It is anticipated that any desert tortoise detected on-site would either be moved out of harm's way or relocated to one of the three adjacent relocation areas. As such, it is not anticipated that a disposition plan will be required. However, if the use of an offsite translocation area is deemed necessary, a disposition plan may be required to provide a detailed analysis of the proposed translocation(s), including monitoring of any desert tortoise, prior to translocation.

8.0 **MONITORING**

While tortoises moved a short distance from construction activities along the perimeter fence would be assumed to be within their home range and familiar with burrow locations, they would receive immediate post-release monitoring. This may be especially critical for juvenile tortoises, which are highly subject to depredation. Any tortoise moved will be watched for at least one hour to determine if it is behaving safely (e.g., seeking shade or a burrow) or if it is likely to try and re-enter the construction area. Because each relocated tortoise will have a transmitter, it will also be located via telemetry for the next two days during tortoise activity temperatures to ensure that the tortoise is not fence-walking. The latter would suggest that the release site had been incorrectly chosen and that re-release at a different location would be prudent. If moved to a different release point, the immediate post-release monitoring of the desert tortoise would be re-initiated.

USFWS (2010b) provides guidance recommending a five-year monitoring program for translocatees. Based on multiple Project surveys, it is assumed that seven or fewer tortoises occur within the HCP Permit boundary and it is unlikely that all desert tortoise will require relocation. Current site monitoring data indicate that only two desert tortoise are resident on-site, and would likely require relocation, while the USFWS estimation equation (see **Section 2.4 Desert Tortoise Take**) calculates an estimate of up to 1.3 desert tortoises within the HCP Permit Boundary. USFWS (2010b) has determined that no resident and control study cohorts are required for fewer than five relocatees or translocatees. Based on the requirements from the USFWS (2010b, 2011), the following elements will be part of the monitoring program:

- Tortoises will be located by telemetry according to the schedule identified in USFWS (2010b) guidelines. Each time the tortoise is located, the behavior, location (UTM), and burrow description (if any) will be recorded. For projects requiring the relocation of five or fewer desert tortoises, no radio telemetry monitoring is required post-construction (USFWS 2011).

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- Survival and general health will be monitored through body condition indices (mass to volume ratios), clinical signs of disease, serology, and inspection for injuries. Any time a tortoise is handled, it will be examined for clinical signs of disease. Formal health assessments will be conducted during April (following brumation), July (following oviposition), and October (prior to brumation). At these times, body condition (mass to volume ratio) also will be measured (mass, carapace length, width at Marginal 5 or 6, height).

It is anticipated that any desert tortoise detected on-site will either be moved out of harm's way or relocated to one of the three adjacent relocation areas. As such, no blood draws would be required, in order to minimize any stress on the health of the tortoises being moved.

Sampling frequency and techniques for disease analysis will be updated as necessary during the study, based on the newest disease information from this and other studies. This may include tests for other pathogens (e.g. *Mycoplasma* spp., herpesvirus, iridovirus) as their importance and evaluation techniques become validated for desert tortoises. Data will be recorded on a data sheet similar to that in Appendix 1, with an additional health assessment data sheet to be provided by USFWS.

- Any health problems observed (e.g., rapid declines in body condition, perceived outbreaks of disease, mortality events) will be reported to the USFWS and CDFW such that appropriate actions can be taken in a timely manner.
- Should a transmittered tortoise die, the cause of death will be determined to the extent possible. This information, along with the location and any other analysis that could assist the USFWS, CDFW, BLM and DOE will be provided to these agencies within 48 hours, verbally, or five business days, if by e-mail. All fresh carcasses will be salvaged and frozen. They will be submitted for necropsy upon direction from USFWS, CDFW, and BLM; DOE will also be notified.
- Transmitters will be changed as necessary.

RE Barren Ridge Solar 1, LLC would monitor all transmittered tortoises for the duration of construction, from the time of relocation (expected March/April 2015) through the end on construction (anticipated to be completed by January 2016). All monitoring elements described above would form the basis of the RE Cinco Project monitoring program. Monitoring relocated desert tortoises through radio telemetry only through the construction phase is recommended by the USFWS for projects requiring the relocation of five or fewer tortoises (USFWS 2011).

9.0 OPERATIONS AND MAINTENANCE PHASE

Tortoises observed on the utility corridors during routine maintenance activities or along the main access road by personnel leaving or entering the Project Site will not be disturbed or handled and will be allowed to move away of their own accord. Any routine maintenance or emergency/unexpected repairs that require surface disturbance or heavy equipment will require that the tortoise be allowed the opportunity to move out of harm's way on its own (as described in this Plan), or can be moved out of harm's way by a qualified individual, such as the on-site Field Contact Representative (FCR). The FCR will be trained by the AB to handle a desert tortoise in case of emergencies (i.e., where a desert tortoise is in imminent danger). During the Operations and Management phase, a trained and approved FCR may move a desert tortoise out of harm's way that does not move on its own in accordance with this Plan.

Because it is anticipated that the Solar Facility of the RE Cinco Project Area will be entirely devoid of vegetation following surface grading, there will be no areas where a tortoise could reside onsite. Therefore, any tortoise found during Project operations likely will have entered the Project Area through a gate or breach in the fence. It is likely, although not impossible, that any tortoise found during Project operations would not yet have constructed a burrow and would have entered the site only recently. Any such tortoise will be relocated, under supervision of the AB, to the nearest suitable, safe habitat outside the fence onto RE Barren Ridge Solar 1, LLC land adjacent to the Project. All tortoises will be placed in the deep shade of a large shrub and monitored as described for tortoises moved during Project Area fence construction.

In the event that surface temperatures are in excess of USFWS relocation temperatures, the tortoise will be secured in an individual, sterilized box and placed in a quiet, climate-controlled environment (e.g., the onsite Project office). Under supervision of the AB, the tortoise will be released in the late afternoon/early evening of the same day, when ambient temperatures subside. Juvenile tortoises will be released in the early morning to minimize depredation. All boxed tortoises or tortoises affixed with transmitters will be monitored periodically during the day and following release, to ensure their safety, according to **Section 8.0, Monitoring**, above.

It would be highly unlikely for a tortoise to be discovered wintered in a burrow on the site. However, if such an inactive tortoise were found, it would be handled and removed from the site as specified for brumating tortoises, above.

10.0 DECOMMISSIONING AND RECLAMATION PHASE

During the Project decommissioning and reclamation phase, activities will take place both inside fenced areas and in unfenced native habitat. All techniques provided above for tortoise relocation during perimeter fence construction will apply to decommissioning activities outside fenced areas. Newer information will be incorporated, as appropriate, to optimize tortoise relocation.

11.0 INJURED OR DEAD TORTOISES

During construction or operations, any tortoise injured or killed will be reported by phone to USFWS and CDFW no later than noon on the first business day following the discovery of the injured/killed tortoise; a follow-up written report will be e-mailed or faxed within 48 hours. Prior to initiation of relocation, the AB will contact CDFW for the name of an approved veterinarian or wildlife rehabilitation clinic. If a tortoise is injured, the tortoise will be taken immediately to one of these facilities. Following phone notification, as required above, resource agency representatives will determine the final disposition of the injured animal, if it recovers. Written notification will include, at a minimum, the date, time, location, circumstances of the incident, and name of the facility where the animal was taken.

If a desert tortoise is killed by Project-related activities during construction, O&M, or decommissioning, a written report with the same information as an injury report will be submitted. The desert tortoise will be salvaged according to guidelines described in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoise* (Berry 2001). The Applicant will pay to have the desert tortoise transported and necropsied. The report will include the date and time of the finding or incident.

No later than 2 days following the above-required notification of an injured, killed, or relocated desert tortoise, the Applicant will deliver to resource agency representatives via fax or electronic communication the written report from the AB describing all reported incidents of an injured, killed, or relocated desert tortoise, identifying who was notified and explaining when the incident occurred. In the case of a sighting in an active construction area, the Applicant will, at the same time, submit a map (e.g., using geographic information systems [GIS]) depicting both the limits of construction and the sighting location to resource agency representatives.

12.0 REPORTING

The AB will provide a report to USFWS and CDFW within 30 days of completing site clearance. This report will document how each of the desert tortoise mitigation measures in this Plan have been satisfied. At a minimum, the report will also document survey results, the capture and release locations of all desert tortoises found, immediate post-release monitoring, individual tortoise data, and other relevant data. The report will also document the effectiveness and practicality of the relocation and monitoring methodologies in place, and make recommendations for modifying the measures to enhance desert tortoise protection, as needed. The report will also provide information on the overall clearance/pre-activity surveys, monitoring activities, and any observed desert tortoises, including injuries and fatalities. These reports will be submitted to USFWS and CDFW; the AB in charge of relocation will approve these reports prior to submittal. Monthly and annual reports that document similar data, collected during all monitoring activities, will be prepared as part of the AB's duties and submitted to USFWS and CDFW.

For the post-relocation monitoring study, an annual report will be submitted to the USFWS and CDFW to document activities and analyze preliminary results. A comprehensive report will be prepared at the end of the monitoring program. Interim contact will be made (e.g., via e-mail or letter reports) if important findings could assist the resource agencies in desert tortoise recovery.

13.0 FUNDING

RE Barren Ridge Solar 1, LLC will provide adequate funds to complete all work as described.

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ATTACHMENT 1

**HEALTH ASSESSMENT PROCEDURES FOR THE
MOJAVE DESERT TORTOISE (*GOPHERUS AGASSIZII*):
A HANDBOOK PERTINENT TO TRANSLOCATION
(U.S. FISH AND WILDLIFE SERVICE,
DESERT TORTOISE RECOVERY OFFICE)**

CHAPTER 7. GUIDELINES FOR HANDLING DESERT TORTOISES- MOJAVE POPULATION AND THEIR EGGS

7.1. Objectives

- Provide the reader with the most current methods for handling desert tortoises based on research and experience implementing previous handling protocols.
- Provide guidance to ensure the health and well-being of desert tortoises while allowing collection of data and necessary handling of desert tortoises.
- Ensure that diseases and parasites are not transmitted among desert tortoises.

7.2. Specific Considerations before Handling Desert Tortoises

Depending on the circumstances, desert tortoises that are beneath machinery, in trenches or pipes, under pallets, or anywhere on the project site may be in danger and may need to be moved. Desert tortoises may be handled only by authorized personnel, but other project personnel may move a desert tortoise the shortest distance necessary to remove the desert tortoise from imminent danger if an Authorized Biologist is not present. The desert tortoise shall be monitored until an Authorized Biologist or USFWS is contacted for further instruction. If desert tortoises must be moved, a secure location must be available and the appropriate procedures in this Manual must be followed to ensure safe handling. If a secure location is not available, the tortoise must be held pending instruction from USFWS and the appropriate State wildlife agency. Before touching a desert tortoise, implement procedures described in Section 7.6.

7.3. Temperature Considerations

Desert tortoises, particularly small ones, have been observed to be active aboveground every month of the year. However, the preferred daytime body temperature of desert tortoises is 69 degrees F to 101 degrees F (20.5 degrees C to 38 degrees C) (McGinnis and Voigt 1971). The critical maximum body temperature is between 103 degrees F and 112 degrees F (39 degrees C to 44 degrees C) (Brattstrom 1965, Naegle 1976). Berry and Turner (1984) found that juvenile desert tortoises preferred air temperatures of 63 degrees F to 66 degrees F (17 degrees C to 19 degrees C) during March, and 77 degrees F to 83 degrees F (25 degrees C to 28 degrees C) during June. Consequently, more juvenile desert tortoises were located in the morning (76.1 percent) than in the afternoon (23.9 percent). Zimmerman et al. (1994) found that air temperatures were comparable between 2 and 10 inches (5 centimeters to 25.4 centimeters) aboveground, with maximum variance of less than 3.5 degrees F (1.2 degrees C). Current information on lower temperature limits for desert tortoise activity is not well known.

Walde et al. (2003) observed that desert tortoises retreated into burrows when the air temperature reached 91.0 degrees F \pm 3.5 degrees F (32.7 degrees C \pm 1.2 degrees) and ground temperatures reached 95 degrees F \pm 6 degrees F (35 degrees C \pm 2.4 degrees); 95 percent of the desert tortoise observations aboveground occurred at air temperatures less than 91.4 degrees F (33 degrees C). Ground temperatures shall be measured on the ground surface in an area near the desert tortoise in full sun, with the thermometer in the shadow of the observer. Ambient air temperature shall

be measured in the shade, protected from wind, at a height of 2 inches (5 centimeters) above the ground surface.

During extreme heat, desert tortoises that shelter in relatively shallow burrows will remain in the burrow as long as the burrow temperature is lower than the temperature outside of the burrow. At night the air and surface temperatures drop faster than the temperature in the burrow. When the air and surface temperature drop below the burrow temperature, the desert tortoise may exit the burrow in an effort to lower its body temperature. Desert tortoises have been observed moving from a few feet out of the burrow to 50 feet (15 meters) or more during the night (Steve Ferrand, 2009, Nevada Biological Consulting, *in litt.*). Tortoises shall not be blocked in burrows during extreme temperatures and construction sites shall be carefully inspected during these periods for tortoises aboveground.

7.4. Hot Temperatures

Desert tortoises shall be treated in a manner to ensure that they do not overheat or exhibit signs of overheating, which include aggressive struggling by the desert tortoise, hot to the touch, frothing at the mouth, excessive salivation, or voiding its bladder. Desert tortoises shall not be placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises shall be kept shaded at all times until it is safe to release them. Ground temperatures are much hotter than air temperatures thus never place a desert tortoise on unshaded ground. Removal of the upper layer of hot substrate would expose a cooler layer below.

No desert tortoise shall be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ground temperature is above 95 degrees F (35 degrees C). Temperature must be measured in the shade and protected from the wind at a height of 2 inches (5 centimeters) above the ground. No desert tortoise shall be captured if ground temperature is anticipated to exceed 95 degrees F (35 degrees C) before handling and relocation can be completed. If the ground temperature exceeds 95 degrees F (35 degrees C) during handling or processing, desert tortoises shall be kept shaded in an environment where the ambient air temperatures do not exceed 91 degrees F (32.7 degrees C) and ground temperature does not exceed 95 degrees F (35 degrees C). The desert tortoise shall not be released until ground temperature at the release site declines to below 95 degrees F (35 degrees C).

If a desert tortoise is found aboveground when these upper temperatures are exceeded and the desert tortoise must be moved from harm's way, place the desert tortoise in a clean, unused cardboard box or disinfected open plastic container, and keep it in a climate-controlled environment (e.g., air conditioned vehicle or building) until the ambient air and ground temperatures are below upper limits.

Hyperthermic Desert Tortoises

Before touching a desert tortoise, implement procedures described in Section 7.6. If an animal begins frothing at the mouth, it is probably nearing an upper lethal body temperature and immediate action is required: a) capture, transport, and hold the desert tortoise in a climate-controlled environment, or b) if a nearby climate-controlled environment is unavailable, place the desert tortoise in an unused or open disinfected plastic container in the shade and pour cool water over the shell to a depth that ensures the nares remain above the water level. If no container is available, excavate a depression in a shaded area; place the desert tortoise in the depression and pour water over the shell. Heat-stressed desert tortoises shall not be released until they resume normal behavior. Monitor the desert tortoise after release until normal behavior resumes including sheltering.

7.5. Cold Temperatures

If a desert tortoise is found aboveground during cold temperatures (i.e., ambient temperature less than 55 degrees F or 12.8 degrees C) and its burrow cannot be located nearby or will be destroyed, then capture the animal and implement the appropriate actions in Table 7.1. Before touching a desert tortoise, implement procedures described in Section 7.6. If relocating the desert tortoise to a natural burrow, ensure that the burrow is unoccupied; both a natural or artificial burrow must be of appropriate size within the average home range for that size and sex animal. If the end of the burrow cannot be seen, the burrow must be examined with a fiber-optic scope to ensure that the burrow and all side channels are unoccupied by other desert tortoises. Placing a desert tortoise in a burrow occupied by another desert tortoise may promote disease transmission and aggressive behavior between the desert tortoises.

Table 7.1. Actions to implement for desert tortoises in harm's way or adjacent to project areas during cold temperatures.

CIRCUMSTANCE	ACTIONS		
	Find natural, unoccupied burrow; block tortoise inside	Construct artificial burrow; block tortoise inside	Construct pen around tortoise and burrow (Section 6.9)
Desert tortoise above ground:			
Desert tortoise in harm's way, not in burrow	X	X	
Desert tortoise and burrow in harm's way	X	X	
Desert tortoise in harm's way, nearby burrow not in harm's way			X
Desert tortoise adjacent to project, burrow in harm's way	X	X	
Desert tortoise adjacent to project, no burrow	X	X	
Desert tortoise and burrow adjacent to project, not in harm's way			X
Desert tortoise in burrow:			
Desert tortoise in harm's way	X	X	
Desert tortoise adjacent to project			X

7.6. Procedures to Avoid Transmission of Diseases or Parasites

At all times, handle a desert tortoise as if it has a contagious disease or parasites, and in such a way to avoid transmitting disease or parasites from one desert tortoise to another. Much of the following information was developed by Berry and Christopher 2001.

During handling each desert tortoise, wear a new pair of disposable latex or rubber gloves (i.e., one pair of gloves, per desert tortoise, per encounter). If a glove is torn while handling a desert tortoise, which is likely when its toenail scrapes the glove, put on a new glove over the old one. Used gloves and disposable supplies (e.g., surveyors tape or flagging, etc.) must be placed in a plastic trash bag and disposed of offsite.

All tools that contact desert tortoises shall be disinfected in accordance with procedures described in Section 7.6.2.

7.6.1. Disinfecting Clothing

Do not allow a desert tortoise to contact clothing. If it does, change clothes before handling another desert tortoise. Contaminated clothes must be washed before worn again while handling desert tortoises. Keep a change of clothes on-hand and change clothes, including shoes, before leaving the site for another geographical location (e.g., another valley or mountain range would

be considered a separate location). As an alternative, wear disposable jumpsuits or gowns and disposable paper or plastic shoe covers. Use disposable paper or plastic sheeting to place under the desert tortoise or on the lap of field workers; disposable baby changing sheets may prove useful.

7.6.2. Disinfecting Tools and Equipment

All equipment and work surfaces after contact with each desert tortoise, any equipment (e.g., scales, calipers, ruler, etc.) that comes in contact with a desert tortoise, including poles used to probe burrows or tap desert tortoises from burrows (Medica et al. 1986), must be disinfected. Disinfecting solutions shall be either 0.175 percent sodium hypochlorite (bleach) (Wendland et al. 2009) or *Nolvasan* (prepared according to the manufacturer's instructions). A 0.175 percent sodium hypochlorite bleach is a 1:10 dilution of 5 percent household bleach to water. Before disinfecting, first remove any organic debris (e.g., dirt, feces, etc.) by rinsing the area with water or brushing off the area with paper towels or a scrub brush. If using a bleach solution, the equipment and work surface shall be saturated with the solution and allowed to air dry. If using a *Nolvasan* solution, the equipment and work surface shall be submersed in the solution (bath) for a minimum of 10 minutes before being used on another animal. Equipment baths shall be changed regularly according to the label instructions. Measures should be taken to avoid transmission of pathogens between burrows when using a fiber-optic scope which may include covering the scope with a disposable plastic cover.

Between study sites, equipment, particularly buckets will be scrubbed using a dish soap and bleach solution. After rinsing, the bleach solution will be sprayed on the equipment and allowed to air dry. This will minimize the chance of cross-contamination between study sites.

Only metal or plastic rulers may be used; never use a wooden ruler, which is too porous and cannot be properly disinfected. If permitted to notch desert tortoises, files must be disinfected after each use.

Thoroughly clean field vehicles inside and out at a car wash before moving to another geographical location.

7.7. Capturing Desert Tortoises

When encountering a desert tortoise outside its burrow, approach the animal slowly (e.g., if the desert tortoise is 15 feet (4.5 meters) away, pace your approach with pauses to contact the desert tortoise in 30 seconds). Put on a clean, unused pair of latex or rubber gloves and grasp the desert tortoise at its bridge (connection between the carapace and plastron) with both hands, holding it firmly with its plastron parallel to, and facing the ground. Slowly lift the desert tortoise to your waist height and slowly and smoothly walk to where the desert tortoise will be placed (e.g., remove from harm's way).

If a desert tortoise is collected at or near sunset and intended to be released the same day, hold the desert tortoise overnight in a clean, unused cardboard box or open disinfected plastic container, and release it the next morning at or near the capture site. Monitor the desert tortoise until it resumes normal behavior.

7.8. Processing Desert Tortoises

Before touching a desert tortoise, implement procedures described in Section 7.6. A desert tortoise shall only be processed (i.e., weighed, measured, or sexed) if authorized in a biological opinion or permit. An experienced biologist should be able to process a desert tortoise in 5 to 10 minutes. **Do not process a desert tortoise if the ambient temperature exceeds 95 degrees F (35 degrees C)** (Section 6.3 or 7.4.) or if there is a chance that a second desert tortoise could be in harm's way and requires timely action while processing the first one.

Inspect a desert tortoise and record data on size, sex, distinctive features, indications of health and disease (e.g., ectoparasites, shell lesions, signs of osteoporosis or osteomalacia, injuries, evidence of URTD, etc.). Ensure that the desert tortoise is maintained in a horizontal position at all times.

7.8.1. Measuring and Sexing

If authorized and required, measure the midline carapace length (MCL) of the desert tortoise from the nuchal to pygal scutes using calipers, which provide the most accurate measurement. Measurements should be taken in millimeters (mm). Before touching a desert tortoise, implement procedures described in Section 7.6.

The sex of desert tortoises less than 180 mm MCL cannot be accurately determined based on external characteristics. Generally, the following male characteristics differentiate them from females: a) concave plastron; b) longer, more curved gulars; c) larger, well-developed chin glands; d) longer, broader, more conical tail; and e) shorter, thicker toenails. Pay particular attention to the gular projection and the shape of the plastron, which are the two best features for differentiating the sexes. For very large desert tortoises, feel the concave (male) or flattened (female) plastron or see it by holding the desert tortoise at eye level without turning the desert tortoise on its back. When in doubt, record all other information and mark "sex unknown" on the data sheet.

7.8.2. Weighing

Handle desert tortoises carefully. Mishandling may result in injury or cause the tortoise to void its bladder. Before touching a desert tortoise, implement procedures described in Section 7.6. If using a digital scale, immobilize the desert tortoise as described in Section 7.8.3. If using a spring scale, place the desert tortoise inside a harness made of clean, unused cord that will avoid the spread of pathogens. It will also minimize gross contamination to the desert tortoise and to field equipment from urination or defecation. The harness shall consist of a double loop with one loop crossing the plastron posterior to the forelimbs and the other anterior to the hind limbs. As the Authorized Biologist slowly begins to raise the tortoise, the tortoise shall remain positioned horizontally and care shall be taken to ensure that the tortoise does slip out of the harness or fall. Using the harness allows the Authorized Biologist to observe any stressful behavior exhibited by the desert tortoise (e.g., flailing of legs) and act quickly to correct this situation. Suspend the harness from the scale, ensuring the desert tortoise is securely and safely positioned, a few inches above sand or soil substrate. Keep weighing time to a minimum; and

take every precaution to prevent the desert tortoise from falling or voiding. Once the desert tortoise has been weighed, dispose of the harness.

The following spring scale sizes are recommended: a) 0 to 100 gram scale with a 1.0 gram precision for small desert tortoises; b) 1 kilogram scale with a 10 gram precision for moderate-sized desert tortoises; and c) 5 kilogram scale with a 50 gram precision for large desert tortoises. It is best to use the smallest scale that will accommodate the weight of a desert tortoise. Occasionally a desert tortoise will weigh more than 5 kilograms; in this case you may use two 5-kilogram scales simultaneously on the harness and add the weights. Keep scales clean and calibrated.

Experts recommend weighing a desert tortoise immediately after capture. This provides a true weight. Should the desert tortoise void its bladder, weigh it afterwards to determine how much fluid has been lost. Another reason for weighing a desert tortoise is to determine if it is underweight for its size. Low weight may be the result of disease, drought conditions, recent egg-laying, or other factors.

7.8.3. Restricting Mobility

Using cylinders - Before touching a desert tortoise, implement procedures described in Section 7.6. A desert tortoise may be placed on the top of a cylindrical holding stand such as a coffee can or other large can to facilitate processing. The stand should be large enough to support the desert tortoise and small enough to prevent any waving appendages from touching the stand, and tall enough to prevent desert tortoise from touching a solid surface below. Given that desert tortoises come in all sizes, a range of stand sizes will be needed. Note that coffee cans and other types of stands come in several sizes and can be "nested" in one another for ease of transport thereby accommodating different-sized desert tortoises. Freedom to move its appendages may encourage a desert tortoise to extend its head, which allows observation of the eyes, nares, chin glands, and beak where most signs of URTD are observed. The stand must be disinfected before using it with another desert tortoise, or place waterproof plastic on top of the stand prior to each use, then position the desert tortoise on top of the plastic, and discard the plastic afterwards.

7.8.4. Assessing Desert Tortoise Health

A section 7 biological opinion or section 10 permit may require a health assessment for encountered desert tortoises. Before initiating this assessment, contact the appropriate USFWS office to determine the information to be included in the health assessment. This will determine the qualifications needed by the person conducting the health assessment. You will need the approval of the person conducting the health assessment from the USFWS.

7.8.5. Marking Desert Tortoises

You must contact the DTRO and appropriate State wildlife agency before marking desert tortoises. Before touching a desert tortoise, implement procedures described in Section 7.6. If authorized, first restrict movement of the desert tortoise (Section 7.8.3.). Next, use a clean, disinfected toothbrush to remove dirt from the left fourth costal scute, where the desert tortoise will be marked. If this scute is damaged, use the right fourth costal scute. Next, place a small

dot (i.e., no larger than 1/4 inch (0.64 centimeter) in diameter) of correction fluid (i.e., white out) or acrylic paint on the scute. The number is likely to last longer if placed on a rough, off-centered surface where shell-wear is less common, which is one reason only the fourth costal scutes are used for marking. Once the spot is dry, write the identifying mark on the spot using a waterproof, permanent black ink pen. Some biologists recommend using a capillary type technical pen (e.g., fine-tip Sharpie).

Allow the number to dry before applying 5-minute epoxy. Mix the epoxy on a file card or piece of paper, then transfer the mixed epoxy to the dot on the shell using a toothpick, wooden coffee stirrer, or tongue depressor. Wait several seconds until the epoxy starts to thicken but is still liquid enough to spread over the numbered spot with ease. Cover the paint spot overlapping its edges just enough to seal the paint. **Never allow the epoxy to spill over onto the growth area, which occurs at the border between two scutes.** Anticipate this when applying the paint so there will be space for the epoxy to overlap the paint without entering the seams. It may be helpful to cover the margins of the scute with 1/2-inch wide masking tape before applying the epoxy, to ensure that the epoxy does not touch the growth area, especially on smaller desert tortoises. Record the identifying mark on the data sheet. Dispose of used materials appropriately after use on each desert tortoise.

7.8.6. Photographing Desert Tortoises

Before touching a desert tortoise for photographing, implement procedures described in Section 7.6. If permitted, photograph processed desert tortoises as follows: a) dorsal view of the carapace; b) the numbered scute; and c) frontal view of the desert tortoise's face and forelegs. Photograph any recent or previously healed injuries or unusual anomalies. Unless specifically required, do not photograph the plastron which would require unnecessary handling and risk to the tortoise. It is important that each object fills 80 to 90 percent of the frame and that the object be clearly focused. Digital photographs are preferred. Two types of labels are recommended: a) hold a small card adjacent to the desert tortoise so that the above information is clearly visible on the photograph without blocking the part of the desert tortoise being photographed; or, b) attach a 1/2 inch x 1/2 inch, adhesive label to the desert tortoise to allow for closer, more detailed photographs of the subject. Dispose of label appropriately following use on each desert tortoise.

Keep a log of the photographs in your field notes (e.g., "photo number 453, carapace of desert tortoise 4"). You must be familiar with the features of the camera. Label photographs with the following information: date, biologist's name, project name, desert tortoise number, UTM or lat/long, county, and state.

Supplies and equipment:

- 3 inch x 5 inch file cards (for identifying photographs)
- 1/2 inch x 1/2 inch labels or other stickers (to attach to desert tortoise to identify photograph)
- Camera

7.9. Desert Tortoise Urination and Hydration

Desert tortoises may void their bladder: 1) when first encountered, picked up, or carried; 2) the longer you handle them; and (3) during drought conditions, which is also when water availability is at its lowest. Since desert tortoises store water in their bladders, any loss of this fluid may result in death (Averill-Murray 2002). Discourage bladder voiding by gently and slowly moving the desert tortoise. If the tortoise does void, record on the data sheet the quantity, color, and viscosity of the urine. If the desert tortoise has already been weighed, weigh it again to estimate the amount of lost fluid. Avoid all unnecessary actions that may result in stress to the animal.

If the desert tortoise urinates, it should be rehydrated. To rehydrate, soak the desert tortoise at the release location in a tub with a clean unused plastic disposable liner for a minimum of 10 to 20 minutes in a quiet protected area. Water level shall not be higher than the lower jaw of the animal; the water temperature should be tepid. Desert tortoises must be soaked individually. Weigh the desert tortoise before and after placing in water. Even if desert tortoises do not drink, they can absorb water through their cloaca. Weighing the desert tortoise before and after placing it in water will determine if the tortoise took in water (James Jarchow, veterinarian, pers. comm.).

On warm days, transport the desert tortoise in the shade. Remember to roll up your sleeves and wear protective clothing to avoid transmitting disease or parasites to other desert tortoises that may come in contact with your clothing. When handling is complete, remove and properly dispose of your gloves and protective clothing.

7.10. Moving and Releasing Desert Tortoises

In this Manual, relocating desert tortoises is defined as moving them from harm's way but allowing them to remain within their home ranges. To relocate, move the desert tortoise the distance directed in the permit or biological opinion once the desert tortoise has been processed. The minimum distance from the edge of the project footprint that a desert tortoise can be relocated will be determined by its age and sex (different home range sizes), the presence or absence of desert tortoise-proof fencing around the perimeter of the project footprint, and the duration of the project activity. Desert tortoises may attempt to return to their point of capture. A desert tortoise should not be placed on private land without the written permission of the landowner.

In this Manual, translocating desert tortoises is defined as moving them from harm's way to a location outside their home range (e.g., more than 1,000 feet (305 meters)). Translocating tortoises should only occur when authorized by the permitting agencies and in accordance with an approved, project-specific translocation plan. Translocation not only affects the desert tortoise being moved but also may impact resident desert tortoises in the translocation area. The effectiveness of translocation of desert tortoises as a conservation or recovery tool has not been proven. Until its effectiveness is determined, it should be implemented only on an experimental basis and in close coordination with the USFWS and State wildlife agency.

For temperature considerations, refer to Section 7.3. To discourage urination or if the tortoise voided during handling, refer to Section 7.9.

After processing is completed, release the desert tortoise as soon as possible while considering its well-being. Desert tortoises shall be released individually and not in groups. The biological opinion or permit may require that desert tortoises be removed from the project site and placed in the shade of a shrub, in a natural unoccupied burrow, or in an artificial burrow. Desert tortoises shall be released at a safe location as near to the point of capture as possible. If a desert tortoise is found aboveground, release it aboveground if environmental conditions are suitable (Sections 7.4 and 7.5), or hold it until conditions are suitable, then release it. When releasing the desert tortoise, slowly lower the animal to the ground, release it, and slowly walk away. Following release, monitor the desert tortoise until it exhibits and maintains normal behavior. Further, we recommend that desert tortoises **not** be put into existing burrows to avoid exposing the desert tortoise to diseases.

If a desert tortoise and its burrow are not in harm's way but adjacent to project activities, as an alternative to moving, construct a temporary restraining pen around the desert tortoise and its burrow to protect it during project activities (See Section 6.9.).

7.10.1. Temporarily Holding Desert Tortoises

There may be a situation where a desert tortoise needs to be removed from the field, held overnight or longer, and then released at its point of capture. While held, each desert tortoise shall remain in a clean, unused or disinfected container that is covered or closed. Newspaper placed in the bottom will absorb any urine that is voided. The box shall be ventilated in such a way that a desert tortoise's leg or head cannot be caught in the ventilation hole. Never put more than one desert tortoise in a container, and avoid placing anything in a container occupied by a tortoise that previously came in contact with another tortoise without following disinfection procedures (Section 7.6.).

7.10.2. Transporting by Vehicle

Do not allow desert tortoises to roam freely in the vehicle. Do not transport desert tortoises in shopping or grocery bags or other containers less sturdy than a new cardboard box. Discard the box immediately after use to ensure that it is not used for another desert tortoise.

Never place desert tortoises over the catalytic converter or other area in a vehicle that becomes hot. Pad truck beds or floorboards and travel at speeds that minimize vibrations or shifting of the box. Never leave a desert tortoise unattended in a vehicle. During summer months, transport desert tortoises in an air-conditioned vehicle, placing them in a covered, unused cardboard box while maintaining the vehicle interior temperature between 75 degrees F and 80 degrees F (23.9 degrees C and 26.7 degrees C). If a desert tortoise is captured during the winter, maintain the desert tortoise at its current body temperature, which will be less stressful to it than much warmer temperatures, and may allow it to remain in a physiological state of brumation. When transporting an adult female desert tortoise, assume it may be gravid (i.e., April through July) and take special care to avoid jolting and jostling to ensure that the eggs are not ruptured which may result in her death from egg yolk peritonitis.

7.11. Injured or Dead Desert Tortoises

If an injured desert tortoise is encountered that may have been the result of project activities, follow the instructions of the biological opinion/permit, which typically requires immediate transport to a qualified veterinarian. Contact the USFWS and appropriate State wildlife agency. Document the injury with photographs and a written description of the injury; circumstances and probable cause; and recommendations to avoid future injuries. Submit this information to the USFWS and other appropriate agencies.

If a dying or dead desert tortoise is encountered, you may not salvage or collect it unless authorized to do so under a biological opinion, section 10 permit, or under 50 *Code of Federal Regulations* 17.31.

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APPENDIX B

GEN-TIE LINE COVERED ACTIVITIES AND AVOIDANCE AND MINIMIZATION MEASURES

APPENDIX B

Gen-Tie Line Covered Activities and Avoidance and Minimization Measures

The generation intertie line (gen-tie line) will provide a direct interconnection with Los Angeles Department of Water and Power's (LADWP's) 230-kilovolt (kV) Barren Ridge Switching Station, located approximately 2 miles north of the proposed solar facility. The right-of-way (ROW) for the gen-tie line will be 150 feet in width, and will accommodate the 230-kV line and an associated access road. The gen-tie line will consist of three primary components: poles/support structures, conductors, and an access road. The following subsections describe the activities that will require coverage under an ITP if the all private land alternative (see Chapter 8) is selected. Figure 8-1 depicts the layout of the private land gen-tie line ROW.

Gen-Tie Line Construction and Installation

Gen-tie construction will begin prior to installation of tortoise exclusion fencing at the solar facility site, and will begin with construction of an access road. The roadway will be constructed with dozers and graders, and then compacted. Associated spoils will be spread evenly over the roadway, thus minimizing barriers to desert tortoise movement and interference with surface hydrology. The road will be 12 feet wide with a maximum disturbance width of 15 feet during construction.

Installation of the gen-tie line will require temporary 60-foot-radius work areas around each structure site. These work areas will be cleared of vegetation. Each structure will be set within a concrete foundation or embedded, with hole dimensions of approximately 3 feet wide by up to 25 feet deep. Pole holes will be excavated using a truck-mounted drill rig; poles will be delivered on a flat-bed trailer and hoisted into place by a crane. The annular space between poles and holes will then be backfilled with concrete. Resultant spoils will be spread within the disturbed area associated with construction of the transmission line or stockpiled for use within the fenced solar facility.

Pull sites will be required for installing conductors. The pull sites will measure approximately 100 feet by 450 feet, and will be located within and adjacent to the access road and/or the ROW.

After conductors have been pulled into place, the conductor sag between the structures will be adjusted to a precalculated level, and the line will then be installed with a minimum ground clearance of 30 feet. The conductors will then be attached to the end of each insulator, the sheaves will be removed, and the vibration dampers and other accessories will be installed.

Construction of the gen-tie line is anticipated to use three to four crews consisting of linemen, electricians, laborers, and operators, totaling 20 to 30 personnel. Installation will take place on weekdays and will not involve overtime or weekend work. Minimal clearing and grading will be required for installation of the gen-tie line, with permanent disturbance limited to a 60-foot radius around each pole area and a 12-foot-wide unimproved access road along the entire length of the gen-tie line.

Construction equipment that will be used during construction of the gen-tie line and associated access road includes dozers; graders; a front-end loader; a compactor; skid steers; a drill rig; a crane; a lift truck; a water truck; a flatbed truck; a road grader; a concrete truck; a back hoe; a forklift; a helicopter; and miscellaneous light-, medium-, and heavy-duty vehicles.

Gen-Tie Line Inspections, Maintenance, and Repairs

Biannual visual inspections will be conducted of the gen-tie line via ground-based line patrols, to include visual inspections of insulators, overhead grounds, and tower hardware. Line patrols will also include trash removal.

As necessary, maintenance and repair of gen-tie line components will be conducted. Potential maintenance and repair activities that may result in take of desert tortoise include pole and conductor maintenance, erosion and foundations repair, complete pole replacements, and road regrading after major storm events to ensure safe access to the facility. Equipment required to complete these maintenance and repair activities will be similar to equipment used during construction of the gen-tie line (see above). However, the intensity and duration of these maintenance and repair activities will be far less than during construction of the gen-tie line.

Gen-Tie Line Decommissioning

Upon a decision to decommission the solar facility, the gen-tie line will likely have no further purpose and will also need to be decommissioned. All conductors and poles will be removed and hauled off-site to an approved landfill. A collection and recycling program will be implemented to promote recycling of components and minimize disposal of components in landfills.

The specific methods to be used for decommissioning will be detailed in the plan. All equipment and materials used along the roadway during active operations will be removed and salvaged for other uses or disposed of at an approved disposal site. Topographic landform features will be restored to pre-Project construction contours. Any soils disturbed in the process of decommissioning will be stabilized using a small rock or gravel surface covering.

Private landowner will determine if the access road is to remain open to limited or general public use, or be closed. If the decision is made to close the road, a restoration plan will be implemented.

Gen-Tie Line Avoidance and Minimization Measures

The Permittee will implement measures to avoid and minimize impacts to biological resources, including desert tortoise and its habitat, during construction, operation and maintenance (O&M), and decommissioning of the gen-tie line. Avoidance and minimization measures include measures listed in Chapter 2 (see Table 2-1) and additional measures listed below Table B-1. All avoidance and minimization measures implemented during construction, O&M, and decommissioning of the gen-tie line will be covered by the Incidental Take Permit (ITP) if the all private land alternative is selected.

Table B-1
Gen-Tie Line-Specific Avoidance and Minimization Measures

Measure Acronym	Measure Description	Timing
General Measures (GM)		
GM-2	The anticipated impact zones within the gen-tie line right-of-way (ROW), including staging areas, equipment access, and disposal or temporary placement of soils, will be delineated with stakes and flagging by a biological monitor prior to construction. Construction-related activities outside of the impact zone will be prohibited.	Pre-construction, construction, decommissioning
Desert Tortoise Measures (DT)		
DT-5	Prior to the start of gen-tie line construction, Authorized Biologists (ABs), and Desert Tortoise Monitors (DTMs) under the direction of an AB, will conduct a desert tortoise pre-construction survey for desert tortoise within the gen-tie line ROW in accordance with current U.S. Fish and Wildlife Service (USFWS) guidelines (USFWS 2009). The pre-construction survey of the gen-tie line ROW will occur no more than 48 hours before planned activity. The pre-construction survey may be conducted during any time of year and will consist of transect surveys at no greater than 5 meters (15 feet) within the gen-tie line ROW and a 50-foot buffer on either side of the ROW. All burrows that could provide shelter for a desert tortoise will be avoided if at all possible through final project design. Burrows that cannot be avoided will be excavated during the clearance survey.	Pre-construction, construction, O&M, decommissioning
DT-10	At the end of each construction workday, the AB or DTM will ensure that all potential wildlife pitfalls resulting from construction activities (trenches, bores, and other excavations) are backfilled. If backfilling is not feasible, all trenches, bores, and other excavations will be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, covered completely to prevent wildlife access, or fully enclosed with desert tortoise exclusion fencing. All trenches, bores, and other excavations outside of the areas permanently fenced with desert tortoise exclusion fencing will be inspected periodically throughout the day, at the end of each workday, and at the beginning of each day by the AB or DTM. Should a desert tortoise or other wildlife become trapped, the AB will remove and relocate the individual, as described in the Desert Tortoise Relocation Plan (Appendix A).	Construction, decommissioning

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